

NATURAL RESOURCES INVESTIGATION REPORT

Including

**Endangered and Threatened Species
Natural Plant Communities
Wetlands and Surface Waters
Wetland Functional Assessment
Wetland Mitigation
Preliminary Groundwater Data**

**Waukesha Bypass
STH 59 to IH 94
Waukesha County, WI
ID: 2788-01-00**

Prepared for:

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August 2010

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GRAEF Project No. 2010-0001.00

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I. Introduction

Graef-USA, Inc. (GRAEF) conducted a natural resources investigation within the subject corridor between March 30 to April 19, 2010. This report documents Endangered and Threatened Species, Natural Plant Communities, Wetlands and Surface Waters, Wetland Functional Assessments, Wetland Mitigation and Preliminary Groundwater Information. The subject corridor begins at the intersection of I-94 and Hwy TT and has two terminus alternatives. Alternative A ties into West Sunset Drive and terminates at CTH X (Genesee Road) for a corridor that extends approximately 4.8 miles. Alternative B is approximately 4.6 miles and extends approximately 1,000 feet southeast of the intersection of CTH X (Genesee Road) and STH 59 and ties into STH 59. The field investigators were Tina M. Myers, Julie Paschal and Laura A.B. Giese.

The subject corridor (Study Area) is shown on Figure 1 in Appendix A. The purpose of the natural resources investigation was to identify and provide a preliminary boundary (via GPS) of jurisdictional wetlands, assess habitat potential for threatened and endangered species, identify high-quality upland habitat, identify potential areas for wetland mitigation, and provide preliminary information on groundwater within the Study Area. The purposes of this investigation is to document existing natural resources, and assess their extent and need for further study. Details concerning the individual report components are provided later in this report. A total of twenty-one (21) wetlands, hereby referred to as "W-1, W-2, through W-21", were observed and assessed within the Study Area (Figure 2, Appendix A).

II. Background Review

Prior to performing the field investigation GRAEF reviewed the Wisconsin Wetland Inventory (Figure 3, Appendix A), the Soil Survey of Milwaukee and Waukesha Counties (Figure 4, Appendix A), and a 2007 aerial photograph obtained from Southeastern Wisconsin Regional Planning Commission (SEWRPC) (Figure 5, Appendix A). Also included on the 2007 aerial photograph of the Study Area are SEWRPC environmental corridor boundaries: Primary Environmental Corridor (PEC), Secondary Environmental Corridor (SEC), and Isolated Natural Resource Area (INRA). A Farm Service Agency (FSA) crop slide review, used to aid in identification of wetlands in agricultural areas, is provided in Appendix B. Together, these ancillary data sources were used to gather background data in order to identify wetlands and other plant communities, assess wetland functions/values and wildlife habitat within the Study Area boundaries.

A. Wetland Inventory Review

The Wisconsin Wetland Inventory (WWI) map depicts ten (10) wetland or wetland complexes within the Study Area (Figure 3, Appendix A). These wetlands range from narrow/linear wetland corridors to relatively large complexes with a mosaic of wetland types. The extensive wetland complex in the southern portion of the site is associated with Pebble Creek. Table 1 lists the WWI-mapped wetland types within the Study Area. The WWI-mapped wetlands correspond with GRAEF's mapped wetlands except for three wetland areas shown on the WWI maps. One is a small wetland (T3K) along the west side of Hwy TT and approximately 1,500 feet north of HWY 18. This WWI-mapped wetland is currently in the area of a stormwater management pond. The second area is a farmed wetland (F0Kf) located immediately south of the Wisconsin and Southern Railroad (WSOR) tracks and approximately 700 feet east of HWY TT. The third area is a farmed wetland (F0Kf) in the

southern portion of the Study Area located approximately 500 feet north of Sunset Avenue and 1,000 feet east of Hwy TT. Both farmed wetlands are under active cultivation and did not have an established hydrophytic plant community during the field investigation. A review of Farm Service Agency (FSA) historic aerial photographs, to determine wetlands hydrology within the farmed wetland areas is discussed below. There were several small wetlands mapped by GRAEF that are not on the WWI (Figure 2, Appendix A).

The discrepancy between the WWI and GRAEF maps are due to disparities in the method of wetland delineation employed. WWI maps, which began production in the 1970's, were constructed using remote sensing techniques, such as aerial photographic interpretation, and are generally not as accurate as physical site examination. In addition, wetlands formed or altered as a consequence of historic human modification of the landscape (e.g. ditching, grading, filling, etc.) are often not depicted on WWI maps.

Table 1. Wisconsin Wetland Inventory Classifications within the Study Area Corridor.

Classification	Class	Subclass	Hydrologic Modifier	Special Modifier
T3K	Forested	Broad-leaved deciduous	Wet soil, Palustrine	--
S3K	Scrub/shrub	Broad-leaved deciduous	Wet soil, Palustrine	--
E1K	Emergent	Persistent	Wet soil, Palustrine	--
E2K	Emergent	Narrow-leaved persistent	Wet soil, Palustrine	--
F0Kf	Flats/unvegetated wet soil	Unknown	Wet soil, Palustrine	Farmed
W0Hx	Open water	Unknown	Standing water, Palustrine	Excavated
U	Upland	--	--	--

B. Soil Survey Review

The *Soil Survey of Milwaukee and Waukesha Counties, Wisconsin*¹ shows the soil series mapped within the subject area (Figure 4, Appendix A). Table 2 provides the soil symbol, series name, taxonomy and whether the soil is listed as hydric or has inclusions of hydric soils.

Table 2. Soil Series for Waukesha Bypass.

Symbol	Series	Taxonomy	Hydric ²
BsA	Brookston silt loam	Mesic Typic Argiaquolls	Yes
CeB, CeC2	Casco loam	Mesic Inceptic Hapludalfs	Not Hydric
CrE	Casco-Rodman Complex	Mesic Inceptic Hapludalfs Mesic Typic Hapludolls	Not Hydric
Cw	Colwood silt loam	Mesic Typic Endoaquolls	Yes
FoC2	Fox loam	Mesic Typic Hapludalfs	Not Hydric
FsB	Fox silt loam	Mesic Typic Hapludalfs	Not Hydric

¹ United States Department of Agriculture, Soil Conservation Service. 1979. *Soil Survey of Milwaukee and Waukesha Counties, Wisconsin*.

² United States Department of Agriculture, Natural Resource Conservation Service
<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

Symbol	Series	Taxonomy	Hydric ²
HmB, B2, C2, D2, E2	Hochheim loam	Mesic Typic Argiudolls	Not Hydric
HoC3	Hochheim soils	Mesic Typic Argiudolls	Not Hydric
HtA, HtB	Houghton muck	Mesic Typic Haplosaprists	Yes
KIA	Kendall silt loam	Mesic Aeris Endoaqualls	Inclusions
KwB	Knowles silt loam	Mesic Typic Hapludalls	Not Hydric
LmB	Lamartine silt loam	Mesic Aquollic Hapludalls	Inclusions
Lu	Loamy land	N/A	Not Hydric
MgA	Martinton silt loam	Mesic Aquic Argiudolls	Inclusions
MmA	Matherton silt loam	Mesic Udollic Endoaqualls	Inclusions
MoB	Mayville silt loam	Mesic Oxyaquic Hapludalls	Not Hydric
MzfA	Mundelein silt loam	Mesic Aquic Argiudolls	Inclusions
Na	Navan silt loam	Mesic Typic Argiaquolls	Yes
Pa	Palms muck	Mesic Terric Haplosaprists	Yes
Ph	Pella silt loam	Mesic Typic Endoaquolls	Yes
Pm	Pella silt loam, moderately shallow variant	Mesic Typic Endoaquolls	Yes
PrA	Pistakee silt loam	Mesic Aquic Udifluvents	Inclusions
RkC2, RkE	Ritchey silt loam	Mesic Lithic Hapludalls	Not Hydric
ShB	Saylesville silt loam	Mesic Typic Hapludalls	Not Hydric
Sm	Sebewa silt loam	Mesic Typic Argiaquolls	Yes
ThB	Theresa silt loam	Mesic Typic Hapludalls	Not Hydric
Wa	Walkill silt loam	Mesic Fluvaquentic Humaquepts	Yes
WeB	Warsaw loam	Mesic Typic Argiudolls	Not Hydric
Ww	Wet alluvial land	Mesic Cumulic Haplaquolls	Yes

C. 2007 Aerial Photography

The 2007 aerial photograph (Figure 5, Appendix A) illustrates the significant amount of agricultural and residential land use within and directly adjacent to the Study Area. It also depicts a significant amount of mixed residential and commercial land uses within the outer vicinity of the Study Area. The Study Area generally follows Hwy TT in the northern portion of the site, along Sunset Drive in the southern portion of the site, as well as through the Pebble Creek wetland complex in the southern portion of the site. The wetlands in the Study Area were a mix of forested, emergent, and scrub/shrub.

D. FSA Crop Slide Review

Annual FSA crop slides were reviewed for the years 1996 through 2008 in order to identify potential farmed wetlands within the Project Corridor. This review was completed in areas of the corridor that were located within agricultural fields. Following the guidance found in the National Food Security Act Manual (NFSAM)³, the review consisted of identification of "wetland signatures" including surface water, drowned out crops (bare soil or mudflats), isolated areas consistently not farmed, patches of greener color in "dry" years, crop stress (yellow) or sparse canopy (light green), saturated soils (dark tones), and drainage features within agricultural areas (e.g. drainage swales, ditching, etc.).

GRAEF looked for areas possessing a "wetland signature" for greater than 6 out of 12 years that could be identified as potential farmed wetlands. If observed during the desktop review,

³ USDA, September 25, 1998. *National Food Security Act Manual. Third Edition, Amendment 2.* U.S. Department of Agriculture, Natural Resources Conservation Service, Fort Worth, TX.

these areas were subsequently marked on field maps for use during the field investigation. Identified areas were then field visited to confirm the presence of farmed wetlands or non-wetlands. Farmed wetlands are confirmed in the field by the presence of flooded or ponded soils, significant presence of hydrophytic vegetation, visual crop stress (e.g. stunted growth or discoloration), physical soil crusts, and/or unplowed or unplanted soils due to wet conditions the previous spring, in addition to the presence of hydric soils. The FSA crop slide review is provided in Appendix B.

FSA crop slide reviews (Appendix B) were made for two agricultural areas that were mapped as wetlands according to the WWI (Figure 2, Appendix A), and one area that was not a WWI-mapped wetland, but mapped by GRAEF (W-11, Figure 2, Appendix A).

Both of the WWI-mapped wetlands are classified as FOKf, in active agricultural use, and determined to have wetland hydrology greater than 50 percent of the years analyzed. Therefore, based on remotely sensed data these areas are wetlands. According to the landowner these agricultural fields have been tilled to remove/reduce conditions too wet to sustain crops. During the field reconnaissance these two WWI-mapped wetlands lacked a hydrophytic plant community, and indicators of wetland hydrology were not present supporting the successful use of the tiles to remove wetland hydrology; therefore, it was determined that these areas are not wetlands.

W-11 was determined to have wetland hydrology greater than 50 percent of the years analyzed. Therefore, based on remotely sensed data this area is a wetland. During the field reconnaissance W-11 had hydrophytic vegetation (even within the active agricultural part) and indicators of wetland hydrology; therefore, it was determined that this area is a wetland.

III. Methodology

The entire Study Area was examined by a pedestrian meander survey, and a preliminary wetland boundary was mapped via handheld GPS. The functions and values of each wetland within the Study Area were assessed using the Wisconsin Department of Natural Resources (WDNR) *Rapid Assessment Methodology (RAM) for Evaluating Wetland Functional Values*. The (RAM) forms completed for each wetland are included in Appendix C. Lists of observed vegetation within, and adjacent to each wetland, as well as general upland habitats, are provided in Appendix D. A WDNR review letter (dated May 4, 2010) documenting threatened, endangered, and special concern species that may occur within the Study Area according to the Natural Heritage Inventory database is included in Appendix E. Description of the wildlife habitat evaluation criteria and a list of species that may inhabit the different habitat types, according to SEWRPC, are included in Appendix F. Site photographs of each wetland have been included on a disc in Appendix G.

IV. Wetland Field Investigation

The wetlands within the study area boundaries were classified according to the system outlined in *Wetland Plants and Plant Communities of Minnesota and Wisconsin*⁴. These classifications are provided below in Table 3. The location of each wetland within the study area is provided on Figure 2 (Appendix A). The wetlands range in size from approximately 0.01 acres to 14.5 acres within the Study Area corridor. The majority of wetland types were fresh (wet) meadow.

⁴ Eggers, S. and D. Reed. 1997. *Wetland Plants and Plant Communities of Minnesota and Wisconsin*. U.S. Army Corps of Engineers, St. Paul District, 264 pp.

Additional wetland types included floodplain forest, hardwood swamp, shrub-carr, shallow marsh, and sedge meadow. The larger wetland complexes associated with Pebble Creek in the southern portion of the Study Area are comprised of a mosaic of wetland types.

V. Wetland Functional Assessments (RAM)

The purpose of the wetland functional assessment was to rate the functions and values of each wetland using the Wisconsin Department of Natural Resources (WDNR) *Rapid Assessment Methodology (RAM) for Evaluating Wetland Functional Values*⁵. The wetland functions and values that were evaluated included floristic diversity, wildlife habitat, fishery habitat, flood/stormwater attenuation, water quality protection, shoreline protection, groundwater, and aesthetics / recreation / education. Each wetland function was then assigned a significance indicator (Low, Medium, High, Exceptional, N/A) based on the results of the assessment and overall quality of each particular function. Though this method of evaluating wetlands can be rather subjective, it is a useful tool for rating the overall quality of a wetland.

In general, the wetland functions and values rated low to medium (Table 3). The functions and values rated high for the larger wetlands comprised of a mosaic of wetland types (Table 3). The Floristic Quality Index (FQI) indicates plant community attributes pertinent to ecological function and as discussed below, the FQI values of each wetland were relatively low (under 20) due to predominance by “weedy” native species as well as non-native species. For example, the non-native and invasive reed canary grass was present in many of the wetlands. The agricultural land in close proximity to the wetlands reduces the habitat quality within and adjacent to each of the wetlands. The hydrologic functions of each of the wetlands, including fishery habitat, stormwater attenuation, water quality protection, and groundwater were variable and generally rated according to wetland morphology, landscape position, wetland size (e.g. estimated storage volume capacity), and seasonality, among other factors. Please refer to the completed RAM forms in Appendix C for specific discussion concerning the rated functions and values of each wetland.

⁵ *WDNR Rapid Assessment Methodology for Evaluating Wetland Functional Values*. Jan 2001. Wisconsin Department of Natural Resources.

Table 3. GRAEF-Mapped Wetlands, WWI Classification, FQI of Wetland and Adjacent Areas, and Wetland Functional Assessments for the Proposed Waukesha Bypass.												
			Floristic Quality Index (FQI) Values		Wetland Functional Assessment							
Wetland	WWI	Eggers and Reed	Wetland Areas	Upland Areas	Floral Diversity	Wildlife Habitat	Fishery Habitat	Flood / Stormwater Attenuation	Water Quality Protection	Shoreline Protection	Groundwater	Aesthetics Recreation Education
W-1	Upland	Fresh (Wet) Meadow	2.0	0	L	L	L	L	L	--	L	L
W-2	T3K	Floodplain Forest	11.6	9.7	M	M	L	M	M	--	M	M
W-3	T3K	Floodplain Forest	11.1	15.3	M	M	L	M	M	--	M	M
W-4	S3/E2K	Fresh (Wet) Meadow	1.0	7.3	L	M	M	L	L	--	L	L
W-5	T3K	Fresh (Wet) Meadow	1.4	2.5	L	M	M	L	L	--	L	L
W-5A	Upland	Fresh (Wet) Meadow	0	0	--	--	--	--	--	--	--	--
W-6	T3/E1K	Hardwood Swamp / Shrub Carr / Shallow Marsh	10.6	2.3	M	M	--	M	M	--	M	M
W-7	E2K	Fresh (Wet) Meadow / Shallow Marsh	1.4	1.2	L	L	--	L	L	--	L	L
W-8	Upland	Hardwood Swamp	9.2	11.5	L	L	--	L	L	--	L	L
W-9	S3/E2K	Fresh (Wet) Meadow	6.9	3.5	L	M	M	M	M	--	M	M
W-10	E2H	Shrub Carr / Fresh (Wet) Meadow / Sedge Meadow / Shallow Marsh	15.1	7.2	H	H	M	H	H	--	H	H
W-11	Upland	Shallow Marsh / Fresh (Wet) Meadow / Farmed Wetland	8.7	0	M	M	L	L	M	--	M	L
W-11A (ditch)	Upland	Fresh (Wet) Meadow	5.7	13.3								
W-12	W0Hx, T3/E2K	Shallow Marsh / Fresh (Wet) Meadow	15.3	11.5	M	M	M	M	M	--	M	M
W-13	E2K	Fresh (Wet) Meadow	12.4	9.0	M	M	M	H	H	--	M	M
W-14	S3/E2K	Fresh (Wet) Meadow	13	Railroad tracks/ Ag field	M	M	--	M	M	--	M	M
W-15	Upland	Hardwood Swamp	7.2	8.3	L	M	--	L	M	--	M	M
W-16	F0Kf		Farmed wetland	Farmed wetland	L	L	L	L	L	--	L	L
W-17	T3/E2K, S3/E1K	Shallow Marsh / Sedge Meadow / Shrub Carr / Fresh (Wet) Meadow	26.1	East: 11.2 West: 13.3	H	H	M	H	H	--	H	H
W-18	T3/S3K, S3/E2K	Sedge Meadow / Fresh (Wet) Meadow / Shrub Carr / Hardwood Swamp / Shallow Marsh	39.2	NE: 10.4 Mesic Forest (NW:18.4/ S:11.4)	H	H	M	H	H	--	H	H
W-19	Upland	Shrub Carr / Hardwood Swamp	13.4	Old Field/SS: 15.0	M	L	L	L	M	--	L	L
W-20	S3/E2K	Shallow Marsh / Shrub Carr	16.7	10.7	M	M	L	M	M	--	M	M
W-21	E2K	Sedge Meadow / Shrub Carr	9.5	3.7	M	M	--	M	M	--	M	M

VI. Upland Habitat Investigation

In the northern portion of the Study Area, mown lawn and ornamental landscaping within the Study Area corridor is prominent. Secondly, agricultural and open fields comprise the majority of non-wetland areas within the Study Area. Dominant species in the open fields include fescue (*Festuca* sp.), goldenrod (*Solidago* sp.) and Queen Anne's lace (*Daucus carota*). Woody species are becoming established in some of the fields. These species include buckthorn (*Rhamnus cathartica*), box elder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), and rose (*Rosa* sp.).

The riparian woodlands associated with the streams that cross the Study Area corridor are relatively mature and include tree species such as box elder, green ash, American elm (*Ulmus americana*), black walnut (*Juglans nigra*), and black cherry (*Prunus serotina*). Several of the upland plant lists corresponding to the wetland plant lists (Appendix D) describe the riparian plant communities.

There are a few additional wooded areas within the Study Area corridor: young woodlands, uneven-aged woodlands, and mature mixed-hardwood woodlands. The young woodlands include honey locust (*Gleditsia triacanthos*), black walnut, box elder, American elm, and green ash. The wooded area associated with Kisdon Hill Park located approximately 700 feet north of Madison Street has a diverse mix of woody species, which include white oak (*Quercus alba*), red oak (*Q. rubra*), bur oak (*Q. macrocarpa*), shagbark hickory (*Carya ovata*), box elder, quaking aspen (*Populus tremuloides*), green ash, eastern red cedar (*Juniperus virginiana*), gray dogwood (*Cornus foemina*), buckthorn, and prickly ash (*Zanthoxylum americanum*). Small remnant woodland similar to the Kisdon Hill Park woodlands is located in the very northwestern corner of the Study Area.

The mature oak woodland in the southern portion of the Study Area, located on the south side of Sunset Drive may represent an Oak Woodland or Southern Dry Forest⁶. Tree species include white oak, red oak, black oak (*Q. velutina*), black cherry, shagbark hickory, cottonwood (*Populus deltoides*), and green ash.

Several areas within the Study Area corridor are depicted as Class I, Class II or Class III wildlife habitat according to the 1985 SEWRPC wildlife habitat maps. Description of the wildlife habitat evaluation criteria is included in Appendix F. A list of species that may inhabit the different habitat types is also included in Appendix F. Pebble Creek is designated as a Class II trout stream, which indicates there is a multi-aged trout population with sufficient numbers for yearly survival and natural reproduction may or may not occur in the stream; however, stocking is necessary to fully utilize the available trout habitat or for sustainable fisheries.

The mix of upland plant communities within the Study Area corridor provides habitat for a variety of common mammals and birds. Many of the upland wooded areas are unconnected and do not provide suitable wildlife corridors. Based on the field reconnaissance none of the upland habitats represent a unique plant community.

VII. Plant Community Floristic Assessments

A list of plant species that were observed within and adjacent to each wetland within the study area is included in Appendix D. For example, the floristic quality assessment (FQA) for W-1 lists plant species observed within W-1, while U-1 lists plant species associated with W-1 in the adjacent uplands. A list of plant species that were observed within the upland communities is also included in

⁶ Wisconsin Natural Heritage Inventory Recognized Natural Communities – working document

Appendix D. Dominant species are noted for each list in its representative plant community. The *Wisconsin Floristic Quality Assessment*⁷ (WFQA) was used to quantitatively determine the floristic quality of the plant communities described within and adjacent to each wetland in the study area.

Information on the WFQA method and FQI values is also included in Appendix D. According to the WFQA method, FQI values lower than 20 generally indicate a disturbed plant community that has a low probability of being regionally significant. An FQI above 20 generally indicates a plant community that is undisturbed and possesses high floristic quality, but also may not be regionally significant. However, as noted earlier, many of the wetlands extended outside of the Study Area boundaries; therefore, not all of the plant species lists can be considered comprehensive. Additionally, the plant lists may not be entirely comprehensive as the time of the site visit may not have corresponded to the optimal identification period for some species of plants.

The average floristic quality index (FQI) for the wetlands was 10.8 (median: 10.0) and the average FQI for the uplands was 8.2 (median: 9.4). The floristic quality index ranged from 0 to 39.2 for the wetland areas and ranged from 0 to 18.4 for the adjacent upland areas. The upland habitat FQI ranged from 6.7 to 13.0, with an average of 10.2. The overall relatively low FQI values may be attributed to the varying degrees of disturbances that the wetlands and uplands have incurred over many years primarily as a result of agricultural practices and encroachment of non-native species.

VIII. Endangered or Threatened Species

The WDNR Natural Heritage Inventory database documents eleven (11) threatened, endangered, or special concern (SC) species and two (2) natural areas of special concern that may occur in the Study Area. Table 4 lists the species and their protected State status. Special Concern species are those species about which some problem of abundance or distribution is suspected but not yet proved. WDNR and federal regulations regarding Special Concern species range from full protection to no protection. The current categories and their respective level of protection associated with the species listed for the Study Area are SC/P = fully protected and SC/N = no laws regulating use, possession, or harvesting. None of the listed species have federal status in Wisconsin.

A. Plants

***Agrimonia parviflora* (Swamp Agrimony)**

This species is found in the southern wet mesic forest and wet prairie community types. Habitat is described as wet woodland patches and ditches, oak-hickory forests, and margins of calcareous marshes⁸. Associated species include *Aster* spp., *Bidens* spp., *Acer negundo*, *A. saccharinum*, *Urtica dioica*, *Gentianopsis procera*, *Cornus stolonifera* and *Betula sandbergii*. Based on the pedestrian survey there is potential habitat for this species within the Study Area.

***Aster furcatus* (Forked Aster)**

This species is found in the southern wet mesic forest and southern mesic forest community types. Habitat is described as dry to mesic hardwoods. It is often found on streamsides or slopes with dolomite near the surface. Associated species include *Quercus borealis*, *Q. alba*, *Populus tremuloides*, *Acer negundo*, *Tilia americana*, *Fraxinus pennsylvanica*, *Aster*

⁷ Bernthal, Tom. 2003. *Development of a Floristic Quality Assessment for Wisconsin*. Wisconsin Department of Natural Resources, Bureau of Fisheries Management and Habitat Protection, 22 pp.

⁸ Wisconsin Department of Natural Resources <http://www.dnr.state.wi.us/org/land/er/biodiversity/>

lateriflorus, *Solidago flexicaulis* and *Jeffersonia diphylla*⁹. Based on the pedestrian survey there is potential habitat for this species within the Study Area.

Table 4. List of Threatened, Endangered or Special Concern Species and Natural Areas of Special Concern That May Be Present in the Proposed Study Area Corridor.

Scientific Name	Common Name	State Status/Rank	Habitat Potential	Search Window
Plants				
<i>Agrimonia parviflora</i>	Swamp Agrimony	SC / S1S2	Yes	Early Aug to early Sept
<i>Aster furcatus</i>	Forked Aster	Threatened / S3	Yes	late August to late Sept
<i>Calylophus serrulatus</i>	Yellow Evening Primrose	SC / S2	Unlikely	Late June to early Oct
<i>Cypripedium candidum</i>	Small White Lady's-slipper	Threatened / S3	Yes	Late May to early June
<i>Cypripedium parviflorum</i> var. <i>makasin</i>	Northern Yellow Lady's-slipper	SC / S3	Yes	Late May to early July
<i>Triglochin maritima</i>	Common Bog Arrow	SC / S3	No	Early July to late August
Natural Area				
Mesic Prairie	--	SC		
Southern Dry Forest	--	SC		
Herpetofauna				
<i>Emydoidea blandingii</i>	Blanding's Turtle	Threatened / S3	Yes	Active early March to mid-October
<i>Thamnophis butleri</i>	Butler's Gartersnake	Threatened / S3	Yes	Active mid-March to early November
Fish				
<i>Erimyzon sucetta</i>	Lake Chubsucker	SC / N S3	No	
Mussels				
<i>Alasmodonta marginata</i>	Elktoe Mussel	SC / P S4	Yes	July through September
<i>Alasmodonta viridis</i>	Slippershell Mussel	Threatened / S2	Yes	Summer: water levels - lowest and water clarity - high

⁹ Wisconsin Department of Natural Resources <http://www.dnr.state.wi.us/org/land/er/biodiversity/> and NatureServe Explorer <http://www.natureserve.org/explorer/>

***Calylophus serrulatus* (Yellow Evening Primrose)**

This species is found in the dry prairie, cedar glade and dry mesic prairie community types. It is found mostly along the Mississippi and lower St. Croix Rivers on steep bluff prairies. It is also found in cedar glades and occasionally in moister prairies. Associated species include *Juniperus virginiana*, *Andropogon scoparium*, *Aster* spp., *Helianthus* spp., *Solidago rigida*, *Stipa spartea*, and *Potentilla arguta*. Based on the pedestrian survey potential habitat for this species is unlikely within the Study Area.

***Cypripedium candidum* (Small White Lady's-slipper)**

This species is found in the mesic prairie, wet prairie and calcareous fen community types. It is also found in mesic blacksoil prairies, wet blacksoil prairies, glacial till hill prairies and sedge meadows. Associated species include *Dodecatheon meadia*, *Lithospermum canescens*, *Sporobolus heterolepis*, *Cirsium muticum*, *Lobelia kalmia*, *Parnassia glauca*, *Potentilla fruticosa*, and *Eupatorium maculatum*. Based on the pedestrian survey there is potential habitat for this species within the Study Area.

***Cypripedium parviflorum* var. *makasin* (Northern Yellow Lady's-slipper)**

This species is found in the southern wet mesic forest and northern wet mesic forest community types. Habitat is typically fens, calcareous swales and rich springy forest edges. Associated species include *Acer saccharinum*, *Thuja occidentalis*, *Pinus strobus*, *Cypripedium reginae*, *Abies balsamea*, *Carex disperma*, *C. trisperma*, *Cornus stolonifera*, *Alnus rugosa*, and *Gentiana andrewsii*. Based on the pedestrian survey there is potential habitat for this species within the Study Area.

***Triglochin maritima* (Common Bog Arrow-grass)**

This species is found in the bog, calcareous fen and northern wet forest community types. Fen mats, open neutral to calcareous conifer swamps and Great Lakes swales are typical habitat. Associated species include *Menyanthes trifoliata*, *Myrica gale*, *Carex lasiocarpa*, *C. livida*, *C. limosa*, *C. interior*, *Arethusa bulbosa*, *Equisetum fluviatile*, *Potentilla fruticosa*, *Cladium mariscoides* and *Utricularia cornuta*. Based on the pedestrian survey there is no potential habitat for this species within the Study Area.

B. Natural Areas**Mesic Prairie**

"This grassland community occurs on rich, moist, well-drained sites. The dominant plant is the tall grass, big bluestem (*Andropogon gerardii*). The grasses little bluestem (*Andropogon scoparius*), indian grass (*Sorghastrum nutans*), porcupine grass (*Stipa spartea*), prairie dropseed (*Sporobolus heterolepis*), and tall switchgrass (*Panicum virgatum*) are also frequent. Common taxa include the prairie docks (*Silphium* spp.), lead plant (*Amorpha canescens*), heath and smooth asters (*Aster ericoides* and *A. laevis*), sand coreopsis (*Coreopsis palmata*), prairie sunflower (*Helianthus laetiflorus*), rattlesnake-master (*Eryngium yuccifolium*), flowering spurge (*Euphorbia corollata*), beebalm (*Monarda fistulosa*), prairie coneflower (*Ratibida pinnata*), and spiderwort (*Tradescantia ohioensis*)."¹⁰

According to Maureen Millmann (WDNR) there is remnant mesic prairie in the area of Pebble Creek and the WSOR tracks. Based on the field reconnaissance there is a small area east of Hwy TT, between the WSOR tracks and the Glacial Drumlin recreation trail, that may match

¹⁰

Wisconsin Department of Natural Resources <http://www.dnr.state.wi.us/org/land/er/biodiversity/>

this plant community. This area corresponds to W-14 (Figure 2, Appendix A). Dominant plants observed in W-14 include prairie cordgrass (*Spartina pectinata*), gray dogwood (*Cornus foemina*), prairie dock (*Silphium terebinthinaceum*), and common teasel (*Dipsacus sylvestris*). Wild bergamot (*Monarda fistulosa*) and sunflower (*Helianthus grosseserratus*); indicative prairie species, were also present.

Southern Dry Forest

"Oaks are the dominant species in this upland forest community of dry sites. White oak (*Quercus alba*) and black oak (*Quercus velutina*) are dominant, often with admixtures of red and bur oaks (*Q. rubra* and *Q. macrocarpa*) and black cherry (*Prunus serotina*). In the well developed shrub layer, brambles (*Rubus* spp.), gray dogwood (*Cornus racemosa*), and American hazelnut (*Corylus americana*) are common. Frequent herbaceous species are wild geranium (*Geranium maculatum*), false Solomon's-seal (*Smilacina racemosa*), hog-peanut (*Amphicarpaea bracteata*), and woodland sunflower (*Helianthus strumosus*)."¹¹ Based on the pedestrian survey there is mature oak woodlands that may match this plant community description within the Study Area. It is located on the south side of Sunset Drive, approximately 2,000 feet east of Merrill Hills Road and discussed in Section VI. Upland Habitat Investigation.

C. Herpetofauna

***Emydoidea blandingii* (Blanding's turtle)**

This species is semi-terrestrial and individuals often move between varieties of wetland types during the active season. Habitat types for this species include deep and shallow marshes, dense emergent and submergent vegetation of shallow lake bays and impoundments. It also may be found in sluggish streams, oxbows, drainage ditches, and sedge or wet meadows adjacent to the aquatic habitats. They overwinter in standing water that is typically more than 3 feet in deep and with a deep organic substrate but will also use both warm and cold-water streams and rivers where they can avoid freezing. Blanding's strongly prefer to nest in sandy soils and may travel well over a mile to find suitable soils. The Blanding's is an omnivore, eating crayfish, snails, tadpoles, fish, insects, worms, grasses, and berries¹². Based on the pedestrian survey there is potential habitat for this species within the Study Area.

***Thamnophis butleri* (Butler's gartersnake)**

This species prefers almost any open-canopy wetland type (not open water) and adjacent open to semi-open canopy upland, including dry prairies, old fields, roadside grassy areas and weedy vacant lots. Low-canopy vegetation (<24") is preferred, however they will occupy habitats with taller vegetation such as reed canary grass. Based on the pedestrian survey there is potential habitat for this species within the Study Area. Several garter snakes were observed in the southern portion of W-18 during the field investigation, but positive species identification was not obtained.

D. Fish

***Erimyzon sucetta* (Lake Chubsucker)**

This species of Special Concern prefers moderately clear lakes, oxbow lakes, and sloughs of lakes with aquatic vegetation or similar waters with little or no flow. This species rarely occurs in streams, but may be found in marshy streams dense with organic debris over bottoms of

¹¹ Wisconsin Department of Natural Resources <http://www.dnr.state.wi.us/org/land/er/biodiversity/>

¹² Wisconsin Department of Natural Resources <http://www.dnr.state.wi.us/org/land/er/biodiversity/> and Turtles & Lizards of Wisconsin

cobble, sand, boulders, mud or silt. Based on the pedestrian survey there is no potential habitat for this species within the Study Area.

E. Mussels

***Alasmidonta marginata* (Elktoe)**

This species is found in small to large sized streams and small to medium rivers. It is typically found in clean, clear water and as a riffle species, prefers swifter currents over packed sand and gravel substrates. The known host fishes include the white sucker (*Catostomus commersoni*), northern hog sucker (*Hypentelium nigricans*), shorthead redhorse (*Moxostoma macrolepidotum*), rockbass (*Ambloplites rupestris*) and warmouth (*Lepomis gulosus*). Based on the pedestrian survey there is potential habitat for this species within the Study Area streams, specifically Pebble Creek.

***Alasmidonta viridis* (Slipper shell)**

This species is found in small to medium-sized streams, buried in sand or fine gravel in shallow water, and occurs along lakeshores on a sand bottom. The known hosts are Johnny darter (*Etheostoma nigrum*) and mottled sculpin (*Cottus bairdi*). Based on the pedestrian survey there is potential habitat for this species within the Study Area streams, specifically Pebble Creek.

IX. Wetland Mitigation

Wetland mitigation is expected to be accomplished through restoration and enhancement of historically drained or degraded wetlands. Three potential wetland mitigation areas, totaling approximately 21 acres, were identified during the preliminary wetland delineation, and are shown on Figure 2, Appendix A. The areas were chosen based on several parameters: topographic location, non-forested plant community, and proximity to Pebble Creek. Agricultural fields that may have been historically drained, but currently in active cultivation, were specifically considered. The three wetland mitigation areas (one restoration and two enhancement areas) and their respective restoration concept are described below.

The wetland restoration area (R-1, Figure 2, Appendix A) is the agricultural field north of Sunset Drive and east of Hwy TT that was mapped by the WWI as a farmed wetland. As discussed earlier in this report no indicators of wetland hydrology were observed in this field during the preliminary wetland delineation investigation. The proposed concept is to break drain tiles to restore wetland hydrology. The field will subsequently be seeded with a diverse mix of hydrophytic species indicative of the adjacent reference wetlands, which are associated with Pebble Creek. It is expected that the area will also be seeded with adjacent volunteer species. Taking this field out of cultivation and reconnecting the hydrology will allow approximately 7.0 acres of emergent/shrub-carr wetland to be restored.

The first potential wetland enhancement area (E-1) is located along Pebble Creek on the north side of the Glacial Drumlin Recreation Trail/WSOR and east of Hwy TT. In this area there is an abundance of reed canary grass (*Phalaris arundinacea*). The proposed concept is to remove the reed canary grass to the extent practicable and seed the area with a diverse mix of hydrophytic herbaceous species within approximately 6.4 acres of existing wetlands/floodplain. Also, proposed is the creation of a wooded riparian buffer along Pebble Creek. Establishing a forested buffer along Pebble Creek will enhance stream habitat for cold water species such as trout.

The second potential wetland enhancement area (E-2) is also located along Pebble Creek on the south side of Sunset Drive. In the area east of Pebble Creek there is an abundance of reed canary grass. The proposed concept is to remove the reed canary grass to the extent practicable and seed

the area with a diverse mix of hydrophytic herbaceous species within approximately 7.5 acres of existing wetlands/floodplain. Additional invasive species such as common buckthorn (*Rhamnus cathartica*) will be targeted for removal.

All of the potential wetland mitigation areas are subject to approval by the regulatory agencies and subject to obtaining property/easement ownership. Detailed wetland mitigation plans, including field-verified acreages will be prepared at a later stage of project development.

X. Preliminary Groundwater Information

The shallow ground water flow patterns were mapped in the 1970's¹³ and again in the 2000's¹⁴. A water table map from the Waukesha County internet mapping site is in Appendix H. The ground water elevations are highest at the north end of the proposed corridor where it meets Interstate Highway 94, and lowest at the southeastern end where the proposed bypass would connect to Highway 59. The mapped contours reflect interaction of Pebble Creek and the ground water system. The flow patterns presented in both the USGS and SEWRPC publications have Pebble Creek receiving ground water flow from both sides of the stream. The ground water system is recharged in the adjacent uplands, ground water flows from the uplands toward the creek, and then discharges to the adjoining wetlands and creek adding to base flow. The discharge of ground water to the stream likely helps moderate the thermal regime of Pebble Creek.

A tributary to Pebble Creek that extends north by northeast toward County Highway TT also affects the local ground water flow pattern. Locally groundwater contours rap around the northward extension of this tributary (Appendix H). East of County Highway TT ground water flow is to the northeast away from the corridor toward Pebble Creek. At County Highway TT south of Mac Arthur Road the local groundwater flow is toward Pebble Creek, flowing south on the north side of the creek and flowing north on the south side of the creek. In this area the direction of ground water flow is parallel to the orientation of the corridor.

The section of the proposed bypass along the existing County Highway TT south of Kame Terrace is proposed in area not previously developed. As such there is a relatively greater potential for impacts to the ground water regime than in the areas north of Kame Terrace where the proposed bypass is to be located along the existing County Highway TT right-of-way. South of Kame Terrace the proposed roadway has the potential to change the quantity and location of recharge to the local ground water system, which in turn can change the nature of the interactions of ground water and Pebble Creek. Also, there is the potential to change the thermal nature of overland runoff into the wetlands adjacent to the creek, and into the creek.

¹³ United States Geological Survey (USGS), 1975, Ground-Water Resources of Waukesha County, Wisconsin, Information Circular Number 29, 47 pages.

¹⁴ South Eastern Wisconsin Regional Planning Commission (SEWRPC), 2002, Groundwater Resources of Southern Wisconsin, Technical Report No. 37, 203 pages.

APPENDICES

Appendix A	Figures
Appendix B	FSA Hydrology Determination
Appendix C	Rapid Assessment Methodology Forms
Appendix D	Plant Data
Appendix E	WDNR – NHI Database Review
Appendix F	SEWRPC Wildlife Habitat Criteria (excerpt)
Appendix G	Site Photographs
Appendix H	Water Table Map

APPENDIX A

Figures

WAUKESHA BYPASS

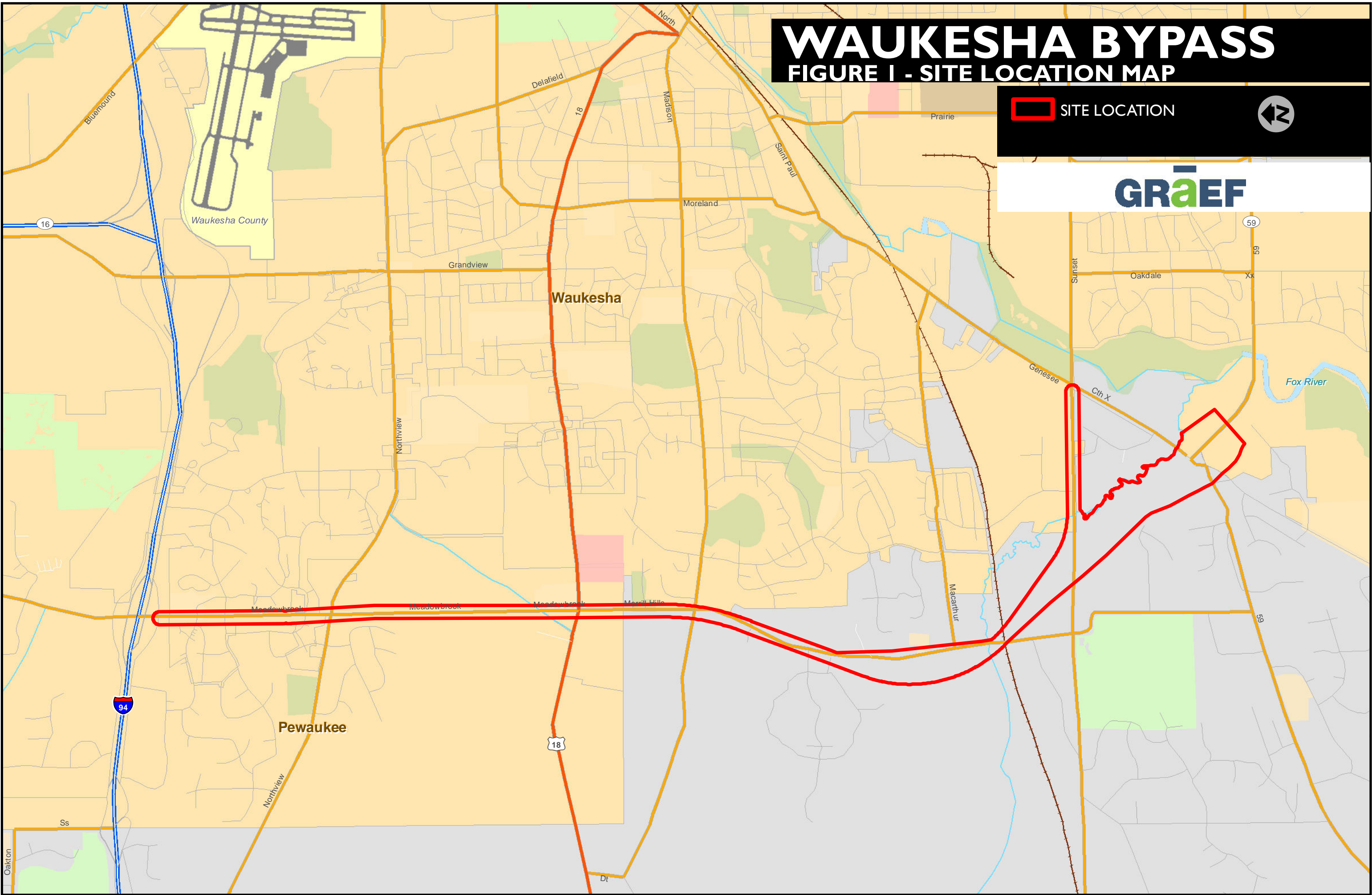
FIGURE I - SITE LOCATION MAP



SITE LOCATION



GR̄EF



INSET 1
1" = 200'

WAUKESHA BYPASS

FIGURE 2 - WETLAND BOUNDARY MAP

PRELIMINARY WETLAND BOUNDARIES

APPROX STREAM LOCATIONS

TEN FOOT CONTOURS

TWO FOOT CONTOURS

CORRIDOR LIMITS

POTENTIAL RESTORATION AREA

SOURCE:
WWI - WISCONSIN DNR, 2005
FEMA - FEMA, 2008
INRA - SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION, 2005
PEC - SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION, 2005
SEC - SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION, 2005



OVERVIEW MAP

INSET 4

INSET 5

INSET 3

INSET 2

INSET 1

INSET 2
1" = 100'

INSET 3
1" = 100'

INSET 4
1" = 100'

INSET 5
1" = 100'

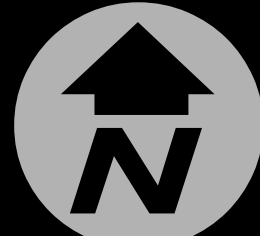
INSET 1
1" = 200'

WAUKESHA BYPASS

FIGURE 3 - WISCONSIN WETLAND INVENTORY

CORRIDOR LIMITS

WISCONSIN WETLAND INVENTORY



SOURCE:
WWI - WISCONSIN DNR, 2005

ID	Class	Subclass	Hydrologic Modifier	Special Modifier
S/E2K	Emergent/Wet Meadow	Narrow-Leaved Persistent	Wet Soil, Palustrine	
S13/E2K	Forested, Emergent/Wet Meadow	Broad-Leaved Deciduous, Narrow-Leaved Persistent	Wet Soil, Palustrine	
E1Ka	Emergent/Wet Meadow	Persistent	Wet Soil, Palustrine	Abandoned
E2H	Emergent/Wet Meadow	Narrow-Leaved Persistent	Standing Water, Palustrine	
E2K	Emergent/Wet Meadow	Narrow-Leaved Persistent	Wet Soil, Palustrine	
F0Kf	Flats/Unvegetated Wet Soil	Subclass Unknown	Wet Soil, Palustrine	Farmed
S3/E1K	Scrub/Shrub, Emergent/Wet Meadow	Broad-Leaved Deciduous/ Persistent	Wet Soil, Palustrine	
S3/E1Ka	Scrub/Shrub, Emergent/Wet Meadow	Broad-Leaved Deciduous/ Persistent	Wet Soil, Palustrine	
S3/E2K	Scrub/Shrub, Emergent/Wet Meadow	Broad-Leaved Deciduous/ Narrow-Leaved Persistent	Wet Soil, Palustrine	Abandoned
S3K	Scrub/Shrub	Broad-Leaved Deciduous	Wet Soil, Palustrine	
T3/E1K	Forested	Broad-Leaved Deciduous/ Persistent	Wet Soil, Palustrine	
T3/E2K	Forested	Broad-Leaved Deciduous/ Narrow-Leaved Persistent	Wet Soil, Palustrine	
T3/S3K	Forested	Broad-Leaved Deciduous/ Broad-Leaved Deciduous	Wet Soil, Palustrine	
T3K	Forested	Broad-Leaved Deciduous	Wet Soil, Palustrine	
U	Upland			
W0Hx	Open Water	Subclass Unknown	Standing Water, Palustrine	Excavated

GRÄEF

OVERVIEW
MAP

INSET 4

INSET 5

INSET 3

INSET 2

INSET 1

INSET 2
1" = 100'

INSET 3
1" = 100'

INSET 4
1" = 100'

INSET 5
1" = 100'

INSET 1
1" = 200'

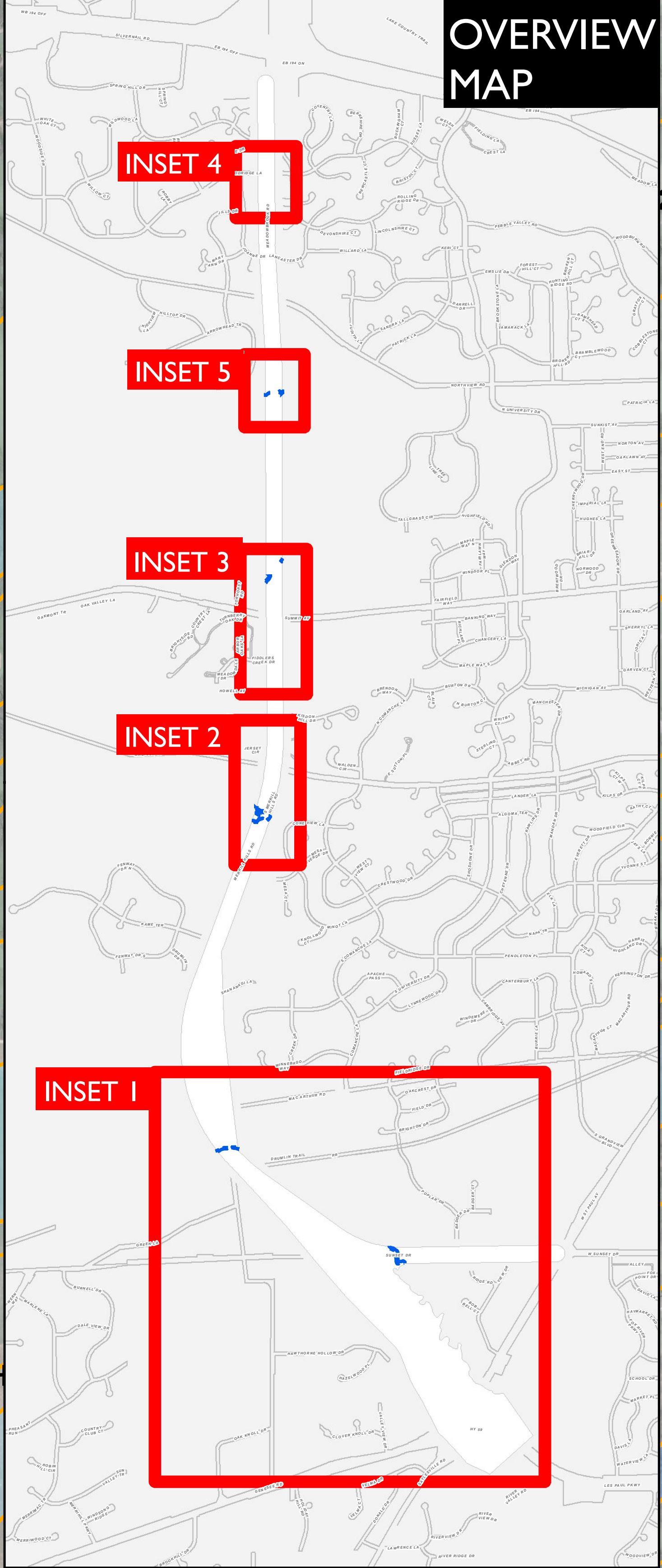
WAUKESHA BYPASS

FIGURE 4 - NRCS SOILS MAP

- CORRIDOR LIMITS
- NRCS SOIL
- PARTIAL HYDRIC SOILS
- ALL HYDRIC SOILS

SOURCE:
SOILS - NRCS USDA SOILS DATA

GRäEF



INSET 2
1" = 100'

INSET 3
1" = 100'

INSET 4
1" = 100'

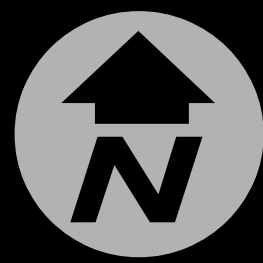
INSET 5
1" = 100'

INSET 1
1" = 200'

WAUKESHA BYPASS

FIGURE 5 - 2000 AERIAL PHOTOGRAPHY

CORRIDOR LIMITS



SOURCE:
AERIAL - SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION, 2000

GRäEF

OVERVIEW
MAP

INSET 4

INSET 5

INSET 3

INSET 2

INSET 1

INSET 2
1" = 100'

INSET 3
1" = 100'

INSET 4
1" = 100'

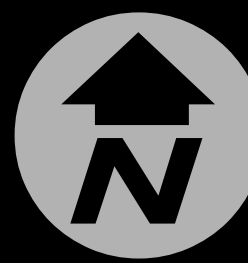
INSET 5
1" = 100'

INSET 1
1" = 200'

WAUKESHA BYPASS

FIGURE 6 - 2007 AERIAL PHOTOGRAPHY

CORRIDOR LIMITS



SOURCE:
AERIAL - SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION, 2007

GRäEF

OVERVIEW
MAP

INSET 4

INSET 5

INSET 3

INSET 2

INSET 1

INSET 2
1" = 100'

INSET 3
1" = 100'

INSET 4
1" = 100'

INSET 5
1" = 100'

APPENDIX B

FSA Hydrology Determination

Wetland Hydrology Determinations in Agricultural Areas

Project Name: Waukesha Bypass
GRAEF Project Number: 2010-0001.00
Wetland ID: W-11
Legal Description: NE 1/4 Section 7, T6N R19E
NRCS / FSA Office: Waukesha County FSA Office
Climate Station: Oconomowoc 1 SW W16200 - Waukesha County
Climate Data Source: WETS Table

Slide / Aerial Photograph Information			Climate Information (from WETS Analysis Worksheet)			
Year	Photo Month (from FSA)*	Moisture Signature	Analysis Months	Normal PPT for Analysis Period	Actual PPT for Analysis Period	Dry/Normal/Wet**
1996	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	14.13	Wet
1997	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	11.32	Normal
1998	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	12.04	Normal
1999	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	15.75	Wet
2000	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	15.49	Normal
2001	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	14.38	Wet
2002	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	10.25	Normal
2005	July	Light tones observed within this farmed field indicative of crop stress created by wetland hydrology in this area.	May - June	10.38	6.10	Dry
2006	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	10.24	Normal
2008	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	17.55	Wet

* Month photo taken is estimated based on vegetation/crop growth observed in the photo.

** Based on WETS Analysis Worksheet

PPT is precipitation in total inches

Wetland Hydrology Determinations in Agricultural Areas

Project Name: Waukesha Bypass
GRAEF Project Number: 2010-0001.00
Wetland ID: W-11
Legal Description: NE 1/4 Section 7, T6N R19E
NRCS / FSA Office: Waukesha County FSA Office
Climate Station: Oconomowoc 1 SW W16200 - Waukesha County
Climate Data Source: WETS Table

The above is a tabulation of _10_ years of record. There were _5_ years of normal precipitation conditions and wetland moisture signatures were observed in _5_ of those normal years.

There was _1_ year with drier than normal condition, and wetness was observed in _1_ of those years.

There were _4_ years with wetter than normal condition, and wetness was observed in _4_ of those years.

Greater than 50% of Years with Wet Signature: YES

Wetland Based on Remotely Sensed Data: YES

Comments:

Wetland Hydrology Determinations in Agricultural Areas

Project Name: Waukesha Bypass
GRAEF Project Number: 2010-0001.00
Wetland ID: WWI-mapped wetland (F0kf) south of WSOR railroad
Legal Description: NE 1/4 Section 7, T6N R19E
NRCS / FSA Office: Waukesha County FSA Office
Climate Station: Oconomowoc 1 SW W16200 - Waukesha County
Climate Data Source: WETS Table

Slide / Aerial Photograph Information			Climate Information (from WETS Analysis Worksheet)			
Year	Photo Month (from FSA)*	Moisture Signature	Analysis Months	Normal PPT for Analysis Period	Actual PPT for Analysis Period	Dry/Normal/Wet**
1996	July	None	May - June	10.38	14.13	Wet
1997	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	11.32	Normal
1998	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	12.04	Normal
1999	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	15.75	Wet
2000	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	15.49	Normal
2001	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	14.38	Wet
2002	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	10.25	Normal
2005	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	6.10	Dry
2006	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	10.24	Normal
2008	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	17.55	Wet

* Month photo taken is estimated based on vegetation/crop growth observed in the photo.

** Based on WETS Analysis Worksheet

PPT is precipitation in total inches

Wetland Hydrology Determinations in Agricultural Areas

Project Name: Waukesha Bypass
GRAEF Project Number: 2010-0001.00
Wetland ID: WWI-mapped wetland (F0kf) south of WSOR railroad
Legal Description: NE 1/4 Section 7, T6N R19E
NRCS / FSA Office: Waukesha County FSA Office
Climate Station: Oconomowoc 1 SW W16200 - Waukesha County
Climate Data Source: WETS Table

The above is a tabulation of _10_ years of record. There were _5_ years of normal precipitation conditions and wetland moisture signatures were observed in _5_ of those normal years.

There was _1_ year with drier than normal condition, and wetness was observed in _1_ of those years.

There were _4_ years with wetter than normal condition, and wetness was observed in _3_ of those years.

Greater than 50% of Years with Wet Signature: YES

Wetland Based on Remotely Sensed Data: NO

Comments: The crop slide analysis indicates this area is a wetland. A field reconnaissance, however, found no wetland vegetation or hydrology in this portion of the farmed field.

Wetland Hydrology Determinations in Agricultural Areas

Project Name: Waukesha Bypass
GRAEF Project Number: 2010-0001.00
Wetland ID: WWI-mapped wetland (F0Kf) east of W-16
Legal Description: SW 1/4 Section 8, T6N R19E
NRCS / FSA Office: Waukesha County FSA Office
Climate Station: Oconomowoc 1 SW W16200 - Waukesha County
Climate Data Source: WETS Table

Slide / Aerial Photograph Information			Climate Information (from WETS Analysis Worksheet)			
Year	Photo Month (from FSA)*	Moisture Signature	Analysis Months	Normal PPT for Analysis Period	Actual PPT for Analysis Period	Dry/Normal/Wet**
1996	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	14.13	Wet
1997	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	11.32	Normal
1998	July	None	May - June	10.38	12.04	Normal
1999	July	None	May - June	10.38	15.75	Wet
2000	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	15.49	Normal
2001	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	14.38	Wet
2002	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	10.25	Normal
2005	July	Dark tones observed within this farmed field suggesting wetland conditions.	May - June	10.38	6.10	Dry
2006	July	None	May - June	10.38	10.24	Normal
2008	July	None	May - June	10.38	17.55	Wet

* Month photo taken is estimated based on vegetation/crop growth observed in the photo.

** Based on WETS Analysis Worksheet

PPT is precipitation in total inches

Wetland Hydrology Determinations in Agricultural Areas

Project Name: Waukesha Bypass
GRAEF Project Number: 2010-0001.00
Wetland ID: WWI-mapped wetland (F0Kf) east of W-16
Legal Description: SW 1/4 Section 8, T6N R19E
NRCS / FSA Office: Waukesha County FSA Office
Climate Station: Oconomowoc 1 SW W16200 - Waukesha County
Climate Data Source: WETS Table

The above is a tabulation of _10_ years of record. There were _5_ years of normal precipitation conditions and wetland moisture signatures were observed in _3_ of those normal years.

There was _1_ year with drier than normal condition, and wetness was observed in _1_ of those years.

There were _4_ years with wetter than normal condition, and wetness was observed in _2_ of those years.

Greater than 50% of Years with Wet Signature: YES

Wetland Based on Remotely Sensed Data: YES

Comments: The crop slide analysis indicates this area is a wetland. A field reconnaissance, however, found no wetland vegetation or hydrology in this portion of the farmed field.

APPENDIX C

Rapid Assessment Methodology Forms

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 1
Location:	County: Waukesha ; 1/4, 1/4, Section 29 , Township 7N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	March 31, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	Upland															
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>floodplain forest</td> <td>alder thicket</td> <td>sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>X wet meadow</td> <td>shrub-carr</td> <td>low prairie</td> <td>hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen	X wet meadow	shrub-carr	low prairie	hardwood swamp	
shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog												
floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen												
X wet meadow	shrub-carr	low prairie	hardwood swamp													
Estimated size of wetland in acres:	Unknown															

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat	X				
Fishery Habitat	X				
Flood/Stormwater Attenuation	X				
Water Quality Protection	X				
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features/"Red Flags":

SITE DESCRIPTION

Page 11

I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: A narrow wetland swale receiving water via a culvert under road TT.

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **Y** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **Y** Does the wetland have standing water, and if so what is the average depth in inches? 6 in Approximately how much of the wetland is inundated? 10 %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☐ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

Page 12

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Phalaris arundinacea</i>
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-1 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **HmB2: Hochheim loam: Mesic Typic Argiudolls**

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

Page 13

B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	
Grassed Recreation Areas/Parks	X
Old Field	
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **N** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☐ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **N** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

NONE

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? 10 %

4. **N** Does the surrounding upland habitat likely support a variety of animal species?

5. **N** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **N** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **N** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **N** Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **Y** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **N** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **Y** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

Page 17

1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **N** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. N | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **N** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y N** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	no
Hunting/fishing/trapping	unknown	no
Boating/canoeing	unknown	no
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 2
Location:	County: Waukesha ; 1/4, 1/4, Section 29 , Township 7N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 1, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	T3K															
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>X floodplain forest</td> <td>alder thicket</td> <td>sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>wet meadow</td> <td>shrub-carr</td> <td>low prairie</td> <td>hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog	X floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen	wet meadow	shrub-carr	low prairie	hardwood swamp	
shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog												
X floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen												
wet meadow	shrub-carr	low prairie	hardwood swamp													
Estimated size of wetland in acres:	Unknown															

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat		X			
Fishery Habitat	X				
Flood/Stormwater Attenuation		X			
Water Quality Protection		X			
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education		X			

List any Special Features/"Red Flags":

SITE DESCRIPTION

Page 20

I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: Narrow wooded floodplain adjacent to stream that flows through culvert under TT.

☐ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

There is adjacent residential development with silt fences that may impede surface runoff.

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **Y** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☐ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

Wetland abuts stream

II. VEGETATION

Page 21

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by:
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by: <i>Fraxinus pennsylvanica, Acer negundo, Ulmus americana</i>
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-2 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **ThB: Theresa silt loam; Mesic Typic Hapludalfs**

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

Page 22

B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	
Grassed Recreation Areas/Parks	
Old Field	X
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

Mallard pair observed

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **N** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **Y** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **Y** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **Y** Is the wetland providing habitat that is ~~some~~ **new** to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **Y** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **Y** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **Y** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

Page 26

1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. N | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. N | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **Y** Long views within the wetland?
- b. **Y** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	No
Boating/canoeing	unknown	No
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 3
Location:	County: Waukesha ; 1/4, 1/4, Section 31 , Township 7N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 1, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	T3K															
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>X floodplain forest</td> <td>alder thicket</td> <td>sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>wet meadow</td> <td>shrub-carr</td> <td>low prairie</td> <td>hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog	X floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen	wet meadow	shrub-carr	low prairie	hardwood swamp	
shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog												
X floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen												
wet meadow	shrub-carr	low prairie	hardwood swamp													
Estimated size of wetland in acres:	Unknown															

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat		X			
Fishery Habitat	X				
Flood/Stormwater Attenuation		X			
Water Quality Protection		X			
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education		X			

List any Special Features/"Red Flags":

SITE DESCRIPTION

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I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: Narrow wooded floodplain adjacent to stream that flows through culvert under TT.

☐ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **Y** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☐ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

Wetland abuts stream

II. VEGETATION

Page 30

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by:
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by: <i>Acer saccharinum, Ulmus americana, Acer negundo</i>
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-3 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **ThB: Theresa silt loam; Mesic Typic Hapludalfs**

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	X
Grassed Recreation Areas/Parks	
Old Field	
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland: Potential wildlife include deer, raccoon, squirrels, songbirds

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **N** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **Y** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **N** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **Y** Is the wetland providing habitat that is ~~some~~ **new** to the region?

1. **N** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **Y** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **Y** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **Y** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions? **Culvert outflow**
5. **N** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **Y** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **Y** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. N | Trash? | h. Y | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **Y** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	no
Boating/canoeing	unknown	no
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 4
Location:	County: Waukesha ; 1/4, 1/4, Section 32 , Township 7N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 1, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	S3/E3K				
Wetland Type:	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog
	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen
	X wet meadow	shrub-carr	low prairie	hardwood swamp	
Estimated size of wetland in acres:	Unknown				

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat		X			
Fishery Habitat		X			
Flood/Stormwater Attenuation	X				
Water Quality Protection	X				
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features/"Red Flags":

SITE DESCRIPTION

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I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: Riparian woodland adj. to downcut, straightened stream stormwater ponds flank both sides, but are separated from stream by berms.

☐ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☐ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

Wetland abuts stream

II. VEGETATION

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A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Phalaris arundinacea</i>
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-4 in Appendix D.

III. SOILS

A. SCS Soil Map Classification:

Pm: Pella silt loam, moderately shallow variant; Mesic Typic Endoaquolls

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?
- Soil description: _____
- Depth of mottling/gleying: _____
- Depth of A horizon: _____
- Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

Page 40

B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	
Grassed Recreation Areas/Parks	
Old Field	
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

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1. N Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. N Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland: Heard chorus frogs; Red-tailed hawk flying overhead.
2. N Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?
3. N Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %
4. N Does the surrounding upland habitat likely support a variety of animal species?
5. Y Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. N Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?
7. N Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. Y Are there other wetland areas near the subject wetland that may be important to wildlife?
9. Y Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. N Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?
11. Y Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. N Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **Y** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **Y** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions? **Culverted outlet**
5. **N** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **N** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **N** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

Page 44

1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **N** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | | | |
|----|----------|-------------------|----|----------|--------------------------------------|
| a. | N | Buildings? | e. | N | Pollution? |
| b. | N | Roads? | f. | Y | Filling? |
| c. | N | Other structures? | g. | N | Dredging/draining? |
| d. | N | Trash? | h. | N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **Y** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **N** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	unlikely
Hunting/fishing/trapping	unknown	unlikely
Boating/canoeing	unknown	no
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 5
Location:	County: Waukesha ; 1/4, 1/4, Section 31 , Township 7N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 1, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	T3K															
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>X floodplain forest</td> <td>alder thicket</td> <td>sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>wet meadow</td> <td>shrub-carr</td> <td>low prairie</td> <td>hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog	X floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen	wet meadow	shrub-carr	low prairie	hardwood swamp	
shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog												
X floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen												
wet meadow	shrub-carr	low prairie	hardwood swamp													
Estimated size of wetland in acres:	Unknown															

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat		X			
Fishery Habitat		X			
Flood/Stormwater Attenuation	X				
Water Quality Protection	X				
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features/"Red Flags":

SITE DESCRIPTION

Page 47

I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: Very narrow riparian woodland adjacent to stream

☐ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

Triple culvert. Stream appears straightened.

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **Y** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☐ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

Wetland abuts stream

II. VEGETATION

Page 48

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Phalaris arundinacea</i>
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-5 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **Pm: Pella silt loam, moderately shallow variant; Mesic Typic Endoaquolls**

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles: _____

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	X
Agricultural/Grazing	
Forested	
Grassed Recreation Areas/Parks	
Old Field	
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

Water striders

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **N** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **N** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **Y** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **Y** Is the wetland providing habitat that is scarce to the region?

Flood and Stormwater Storage/Attenuation

Page 52

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **Y** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **Y** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **N** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **N** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **Y** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

Page 53

1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. N | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. Y | Filling? |
| c. N | Other structures? | g. Y | Dredging/drainage? |
| d. N | Trash? | h. Y | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **Y** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	unlikely
Boating/canoeing	unknown	unlikely
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 6
Location:	County: Waukesha ; 1/4, 1/4, Section 32 , Township 7N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 1, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	T3/E1K				
Wetland Type:	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog
	X floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen
	wet meadow	shrub-carr	low prairie	hardwood swamp	
Estimated size of wetland in acres:	Unknown				

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat		X			
Fishery Habitat					X
Flood/Stormwater Attenuation		X			
Water Quality Protection		X			
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education		X			

List any Special Features/"Red Flags":

SITE DESCRIPTION

I. HYDROLOGIC SETTING

Page 56

A. Describe the geomorphology of the wetland: Depressional wetland bounded by road intersection

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

Flow is impeded by roadway

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

Culverts provide both inflow and outflow

D. **Y** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☐ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

Page 57

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Typha</i> spp., <i>Phalaris arundinacea</i> , <i>Alliaria petiolata</i>
	shrub community dominated by: <i>Salix discolor</i> , <i>Salix interior</i>
	deciduous broad-leaved tree community dominated by: <i>Populus deltoides</i> , <i>Acer saccharinum</i>
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-6 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **Ph: Pella silt loam: Mesic Typic Endoaquolls**
LmB: Lamartine silt loam: Mesic Aquollic Hapludalfs

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

Page 58

B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	
Grassed Recreation Areas/Parks	X
Old Field	
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

Page 60

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. **Y** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

None Observed

2. **Y** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?
3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %
4. **N** Does the surrounding upland habitat likely support a variety of animal species?
5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?
7. **Y** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?
9. **N** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?
11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. **Y** Is the wetland providing habitat that is scarce to the region?

Flood and Stormwater Storage/Attenuation

Page 61

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **Y** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **Y** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions? **Roads**
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **Y** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **N** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **Y** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

Page 62

1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **Y** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. N | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. N | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **Y** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **Y** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **Y** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	no
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 7
Location:	County: Waukesha ; 1/4, 1/4, Section 31 , Township 7N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 1, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	E2K															
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>floodplain forest</td> <td>alder thicket</td> <td>sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>X wet meadow</td> <td>shrub-carr</td> <td>low prairie</td> <td>hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen	X wet meadow	shrub-carr	low prairie	hardwood swamp	
shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog												
floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen												
X wet meadow	shrub-carr	low prairie	hardwood swamp													
Estimated size of wetland in acres:	Unknown															

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat	X				
Fishery Habitat					X
Flood/Stormwater Attenuation	X				
Water Quality Protection	X				
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features/"Red Flags":

SITE DESCRIPTION

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I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: Small emergent wetland extends under parking structure to water control outlet

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☐ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

Page 66

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Typha angustifolia</i> , <i>Phalaris arundinacea</i>
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-7 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **Ph: Pella silt loam: Mesic Typic Endoaquolls**

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	X
Grassed Recreation Areas/Parks	
Old Field	
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **N** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

Environmental corridor does not extend to west side of TT.

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☐ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

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1. N Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. N Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

NONE OBSERVED

2. N Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?
3. N Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %
4. N Does the surrounding upland habitat likely support a variety of animal species?
5. N Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. N Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?
7. N Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. Y Are there other wetland areas near the subject wetland that may be important to wildlife?
9. N Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. N Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?
11. Y Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. N Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **Y** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **Y** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **Y** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | | | |
|----|----------|-------------------|----|----------|--------------------------------------|
| a. | N | Buildings? | e. | N | Pollution? |
| b. | N | Roads? | f. | N | Filling? |
| c. | N | Other structures? | g. | N | Dredging/draining? |
| d. | N | Trash? | h. | N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **N** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	no
Hunting/fishing/trapping	unknown	no
Boating/canoeing	unknown	no
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 8
Location:	County: Waukesha ; 1/4, 1/4, Section 6 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 1, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	Upland															
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>floodplain forest</td> <td>alder thicket</td> <td>sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>wet meadow</td> <td>shrub-carr</td> <td>low prairie</td> <td>X hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen	wet meadow	shrub-carr	low prairie	X hardwood swamp	
shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog												
floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen												
wet meadow	shrub-carr	low prairie	X hardwood swamp													
Estimated size of wetland in acres:	Unknown															

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat	X				
Fishery Habitat					X
Flood/Stormwater Attenuation	X				
Water Quality Protection	X				
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features/"Red Flags":

SITE DESCRIPTION

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I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: A narrow wooded wetland

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. Y Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

Roads and development have altered hydrology

C. Y Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. N Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. N Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☐ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. Y N Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

Page 75

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by:
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by: <i>Ulmus americana, Populus deltoides, Phalaris arundinacea</i>
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-8 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **LmB: Lamartine silt loam: Mesic Aquollic Hapludalfs**
Ph: Pella silt loam: Mesic Typic Endoaquolls

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	X
Grassed Recreation Areas/Parks	
Old Field	
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **N** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☐ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

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1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

NONE OBSERVED

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?
3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %
4. **N** Does the surrounding upland habitat likely support a variety of animal species?
5. **N** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?
7. **N** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?
9. **N** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?
11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. **N** Is the wetland providing habitat that is scarce to the region?

1. **N** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | | | |
|----|----------|-------------------|----|----------|--------------------------------------|
| a. | N | Buildings? | e. | N | Pollution? |
| b. | N | Roads? | f. | N | Filling? |
| c. | N | Other structures? | g. | Y | Dredging/draining? |
| d. | N | Trash? | h. | N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	unlikely
Hunting/fishing/trapping	unknown	unlikely
Boating/canoeing	unknown	no
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 9
Location:	County: Waukesha ; 1/4, 1/4, Section 6 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 1, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	S3/E2K				
Wetland Type:	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog
	X floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen
	X wet meadow	shrub-carr	low prairie	hardwood swamp	
Estimated size of wetland in acres:	Unknown				

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat		X			
Fishery Habitat		X			
Flood/Stormwater Attenuation		X			
Water Quality Protection		X			
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education		X			

List any Special Features/"Red Flags":

SITE DESCRIPTION

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I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: Narrow wooded riparian area with adjacent wet meadow

☐ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

Stream is downcutting and showing signs of bank erosion

Culverts may restrict downstream flow

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

Wetland abuts stream

II. VEGETATION

Page 84

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Poa pratensis, Phalaris arundinacea</i>
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-9 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **PrA: Pistakee silt loam: Mesic Aquic Udifluvents**
LmB: Lamartine silt loam: Mesic Aquollic Hapludalfs

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	X
Agricultural/Grazing	
Forested	X
Grassed Recreation Areas/Parks	
Old Field	
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

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1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

NONE OBSERVED

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?
3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %
4. **Y** Does the surrounding upland habitat likely support a variety of animal species?
5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?
7. **N** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?
9. **Y** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?
11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. **N** Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **Y** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **N** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **N** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **Y** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

Page 89

1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. N | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	no
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 10
Location:	County: Waukesha ; 1/4, 1/4, Section 6 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 1, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	E2H																		
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>X</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>floodplain forest</td> <td>alder thicket</td> <td>X</td> <td>sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>X wet meadow</td> <td>X shrub-carr</td> <td></td> <td>low prairie</td> <td>hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	X	shallow marsh	seas. flooded basin	bog	floodplain forest	alder thicket	X	sedge meadow	coniferous swamp	fen	X wet meadow	X shrub-carr		low prairie	hardwood swamp	
shallow open water	deep marsh	X	shallow marsh	seas. flooded basin	bog														
floodplain forest	alder thicket	X	sedge meadow	coniferous swamp	fen														
X wet meadow	X shrub-carr		low prairie	hardwood swamp															
Estimated size of wetland in acres:	Unknown																		

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity			X		
Wildlife Habitat			X		
Fishery Habitat		X			
Flood/Stormwater Attenuation			X		
Water Quality Protection			X		
Shoreline Protection					X
Groundwater			X		
Aesthetics/Recreation/Education			X		

List any Special Features/"Red Flags":

SITE DESCRIPTION

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I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: Extensive wetland complex with mosaic of emergent and shrub wetlands w/few small wooded areas. Stream flows through southern section; swm ponds are adjacent

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **N** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **Y** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

Part of wetland abuts stream

II. VEGETATION

Page 93

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Typha</i> spp., <i>Phalaris arundinacea</i> , <i>Agrostis gigantea</i>
	shrub community dominated by: <i>Cornus foemina</i>
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by: <i>Carex stricta</i>
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-10 in Appendix D.

III. SOILS

A. SCS Soil Map Classification:

Wa: Wallkill silt loam: Mesic Fluvaquentic Humaquepts

Ph: Pella silt loam: Mesic Typic Endoaquolls

HtA: Houghton muck: Mesic Typic Haplosaprists

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	
Grassed Recreation Areas/Parks	
Old Field	X
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

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1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

2. **Y** Is the wetland plant community regionally scarce or rare?

Sedge meadow component is regionally rare

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

Variety of songbirds

2. **Y** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **Y** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **Y** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **Y** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **Y** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **Y** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **Y** Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **Y** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **N** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **Y** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **Y** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **Y N** Is any part of the wetland in public or conservation ownership?
UNKNOWN
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. N | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **Y** Buildings?
- b. **N** Roads?
- c. **Y** Other structures?

7. **Y** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **Y** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **Y** Long views within the wetland?
- b. **Y** Long views in the viewshed adjacent to the wetland?
- c. **Y** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y N** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	no
Food harvesting	unknown	maybe
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 11
Location:	County: Waukesha ; 1/4, 1/4, Section 7 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 1, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	Upland															
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>floodplain forest</td> <td>alder thicket</td> <td>sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>X wet meadow</td> <td>X shrub-carr</td> <td>low prairie</td> <td>hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen	X wet meadow	X shrub-carr	low prairie	hardwood swamp	
shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog												
floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen												
X wet meadow	X shrub-carr	low prairie	hardwood swamp													
Estimated size of wetland in acres:	Unknown															

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat		X			
Fishery Habitat	X				
Flood/Stormwater Attenuation	X				
Water Quality Protection		X			
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education	X				

List any Special Features/"Red Flags":

SITE DESCRIPTION

I. HYDROLOGIC SETTING

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A. Describe the geomorphology of the wetland: An emergent wetland in an agricultural field connects transitions to a wooded wetland; stream originates from exposed drain tile just inside woodlands.

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☐ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

A. Identify the vegetation communities present and the dominant species.

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	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Typha</i> spp., <i>Setaria glauca</i> , <i>Setaria faberi</i>
	shrub community dominated by: <i>Salix discolor</i> , <i>Cornus amomum</i> , <i>Phalaris arundinacea</i>
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-11 in Appendix D.

III. SOILS

A. SCS Soil Map Classification:

HmB: Hochheim loam: Mesic Typic Argiudolls

MzfA: Mundelein silt loam: Mesic Aquic Argiudolls

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	X
Agricultural/Grazing	
Forested	X
Grassed Recreation Areas/Parks	
Old Field	X
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:
 Wooded part of wetlands is in an Environmental Corridor
 - ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
 - ☐ b. Lakes Michigan and Superior and the Mississippi River;
 - ☐ c. State of federal designated wild and scenic river;
 - ☐ d. Designated state riverway;
 - ☐ e. Designated state scenic urban waterway;
 - ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
 - ☐ g. Calcareous fen;
 - ☐ h. State park, forest, trail or recreation area;
 - ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
 - ☐ j. State or federal designated wilderness area;
 - ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
 - ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. N Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

Some *Phragmites australis* and *Typha*

2. N Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

NONE OBSERVED

2. N Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?

3. N Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. N Does the surrounding upland habitat likely support a variety of animal species?

5. Y Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. N Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. N Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. Y Are there other wetland areas near the subject wetland that may be important to wildlife?

9. N Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. N Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. Y Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. N Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. Y | Roads? | f. Y | Filling? |
| c. N | Other structures? | g. Y | Dredging/draining? |
| d. Y | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y N** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	no
Food harvesting	unknown	maybe
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 12
Location:	County: Waukesha ; 1/4, 1/4, Section 7 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 5, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION W0Hx, T3/E2K

Wisconsin Wetlands Inventory Classification:					
Wetland Type:	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog
	X floodplain forest	alder thicket	X sedge meadow	coniferous swamp	fen
	X wet meadow	shrub-carr	low prairie	hardwood swamp	
Estimated size of wetland in acres: Unknown					

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat		X			
Fishery Habitat		X			
Flood/Stormwater Attenuation		X			
Water Quality Protection		X			
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education		X			

List any Special Features/"Red Flags":

SITE DESCRIPTION

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I. HYDROLOGIC SETTING

- A. Describe the geomorphology of the wetland: Mix of forested and emergent wetland along Pebble Creek
Near Glacial-Drumlin recreation trail.

☐ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

- B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

**Pebble Creek is culverted under TT. Pebble Creek appears to be
straightened/channelized on west side of TT.**

- C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

- D. **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

- E. **Y N** Does the wetland have standing water, and if so what is the average depth in inches? 1 in Approximately how much of the wetland is inundated? 2 %

- F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☐ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

- G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

Wetland abuts Pebble Creek and tributary

II. VEGETATION

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A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Phalaris arundinacea</i>
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by: <i>Carex stricta, Carex trichocarpa</i>
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-12 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **Ww: Wet alluvial land: Mesic Cumulic Haplaquolls**

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?
- Soil description: _____
- Depth of mottling/gleying: _____
- Depth of A horizon: _____
- Munsell color of matrix and mottles:
 - Matrix below the A horizon (25 cm depth): _____
 - Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	X
Grassed Recreation Areas/Parks	
Old Field	X
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

However, reed canary grass is fairly dominant

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

deer tracks, minnows in open water; heard chorus frogs

2. **Y** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersed of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **Y** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **Y** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **Y** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **Y** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **N** Is the wetland providing habitat that is scarce to the region?

1. **N** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **Y** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **N** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **Y** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **Y** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. N | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
 b. **N** Roads?
 c. **N** Other structures?

7. **Y** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **Y** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **Y** Long views within the wetland?
 b. **Y** Long views in the viewshed adjacent to the wetland?
 c. **Y** Convoluted edges within and/or around the wetland border?
 d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	maybe
Food harvesting	unknown	maybe
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 13
Location:	County: Waukesha ; 1/4, 1/4, Section 7 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 5, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	E2K															
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>X floodplain forest</td> <td>alder thicket</td> <td>X sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>X wet meadow</td> <td>shrub-carr</td> <td>low prairie</td> <td>hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog	X floodplain forest	alder thicket	X sedge meadow	coniferous swamp	fen	X wet meadow	shrub-carr	low prairie	hardwood swamp	
shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog												
X floodplain forest	alder thicket	X sedge meadow	coniferous swamp	fen												
X wet meadow	shrub-carr	low prairie	hardwood swamp													
Estimated size of wetland in acres:	Unknown															

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat		X			
Fishery Habitat		X			
Flood/Stormwater Attenuation			X		
Water Quality Protection			X		
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education		X			

List any Special Features/"Red Flags":

SITE DESCRIPTION

I. HYDROLOGIC SETTING

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A. Describe the geomorphology of the wetland: Extensive wetland complex along Pebble Creek

☐ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

Inflow through a culvert under TT

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **Y** Does the wetland have standing water, and if so what is the average depth in inches? 1 in Approximately how much of the wetland is inundated? 5 %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☐ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

Wetland abuts Pebble Creek

II. VEGETATION

A. Identify the vegetation communities present and the dominant species.

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	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Typha angustifolia, Carex stricta, Carex trichocarpa</i>
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-13 in Appendix D.

III. SOILS

Ph: Pella silt loam: Mesic Typic Endoaquolls

A. SCS Soil Map Classification: **Ww: Wet alluvial land: Mesic Cu,ulic Haplaquolls**

Sm: Sebewa silt loam: Mesic Typic Argiaquolls

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	X
Agricultural/Grazing	
Forested	X
Grassed Recreation Areas/Parks	
Old Field	X
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

However, reed canary grass and cattail are abundant

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

deer tracks, red-winged blackbirds, sparrows, robins

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **Y** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **Y** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **Y** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **Y** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **N** Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?

Roads and paved trails

2. **Y** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?

3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?

4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?

5. **N** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].

6. **Y** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?

2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?

3. **Y** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?

4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?

5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?

6. **Y** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Stream substrate is covered with silt and algae present in places

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. Y | Roads? | f. Y | Filling? |
| c. N | Other structures? | g. Y | Dredging/draining? |
| d. Y | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **Y** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **Y** Long views within the wetland?
- b. **Y** Long views in the viewshed adjacent to the wetland?
- c. **Y** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	maybe
Food harvesting	unknown	maybe
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 14
Location:	County: Waukesha ; 1/4, 1/4, Section 7 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 5, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	S3/E2K				
Wetland Type:	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog
	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen
	X wet meadow	X shrub-carr	X low prairie	hardwood swamp	
Estimated size of wetland in acres:	Unknown				

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat		X			
Fishery Habitat					X
Flood/Stormwater Attenuation		X			
Water Quality Protection		X			
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education		X			

List any Special Features/"Red Flags":

SITE DESCRIPTION

I. HYDROLOGIC SETTING

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A. Describe the geomorphology of the wetland: A small emergent wetland w/inundated swale in agriculture field south of railroad tracks; potential drain tile at head flows under RR where wetland

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.) is a mix of emergent and shrub.

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. ☒ Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

Railroad tracks

C. ☒ Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. ☒ Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. ☒ ☒ Does the wetland have standing water, and if so what is the average depth in inches? 3 in Approximately how much of the wetland is inundated? 5 %
water only in swale/ditch

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☐ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. ☒ Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

Page 129

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Spartina pectinata</i> , <i>Cornus foemina</i> , <i>Silphium terebinthinaceum</i>
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-14 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **MmA: Matherton silt loam: Mesic Udollic Endoaqualfs**

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	X
Agricultural/Grazing	
Forested	
Grassed Recreation Areas/Parks	
Old Field	
Highways or Roads	X
Other (Specify)	Railroad Tracks

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

However, there are many invasive species

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

deer tracks, minnows in head of swale

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **N** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **N** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **N** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **N** Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **Y** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions? Culverts under RR tracks and bike path
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **Y** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **N** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

Bike path

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. Y | Roads? | f. Y | Filling? |
| c. N | Other structures? | g. Y | Dredging/draining? |
| d. N | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
 b. **N** Roads?
 c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
 b. **N** Long views in the viewshed adjacent to the wetland?
 c. **N** Convoluted edges within and/or around the wetland border?
 d. **N** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	no
Food harvesting	unknown	maybe
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 15
Location:	County: Waukesha ; 1/4, 1/4, Section 8 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 5, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	Upland															
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>floodplain forest</td> <td>alder thicket</td> <td>sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>wet meadow</td> <td>shrub-carr</td> <td>low prairie</td> <td>X hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen	wet meadow	shrub-carr	low prairie	X hardwood swamp	
shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog												
floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen												
wet meadow	shrub-carr	low prairie	X hardwood swamp													
Estimated size of wetland in acres:	Unknown															

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat		X			
Fishery Habitat					X
Flood/Stormwater Attenuation	X				
Water Quality Protection		X			
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education		X			

List any Special Features/"Red Flags":

SITE DESCRIPTION

I. HYDROLOGIC SETTING

Page 137

A. Describe the geomorphology of the wetland: A small isolated forested wetland within an agricultural field.

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

Wetland surrounded by berm to retain hydrology

C. **N** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **Y** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **Y N** Does the wetland have standing water, and if so what is the average depth in inches? 6"+ Approximately how much of the wetland is inundated? 80 %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☒ Permanently Flooded

☐ Seasonally Flooded (water absent at end of growing season)

☐ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

Page 138

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by:
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by: <i>Populus deltoides, Phalaris arundinacea, Typha angustifolia</i>
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-15 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **LmB: Lamartine silt loam: Mesic Aquollic Hapludalfs**
MmA: Matherton silt loam: Mesic Udollic Endoaqualfs
HmB2: Hochheim loam: Mesic Typic Argiudolls

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	
Agricultural/Cropland	X
Agricultural/Grazing	X
Forested	
Grassed Recreation Areas/Parks	
Old Field	
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **N** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☐ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

Robins; Large nest in tree (possibly hawk)

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **N** Does the surrounding upland habitat likely support a variety of animal species?

5. **N** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **N** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **N** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **Y** Is the wetland providing habitat that is scarce to the region? Isolated wetland

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **N** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **N** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **Y** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **N** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **N** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. Y | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. N | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **Y** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	no
Food harvesting	unknown	maybe
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 16
Location:	County: Waukesha ; 1/4, 1/4, Section 8 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 5, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	F0Kf															
Wetland Type:	<table border="0"> <tr> <td>shallow open water</td> <td>deep marsh</td> <td>shallow marsh</td> <td>seas. flooded basin</td> <td>bog</td> </tr> <tr> <td>floodplain forest</td> <td>alder thicket</td> <td>sedge meadow</td> <td>coniferous swamp</td> <td>fen</td> </tr> <tr> <td>X wet meadow</td> <td>shrub-carr</td> <td>low prairie</td> <td>hardwood swamp</td> <td></td> </tr> </table>	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen	X wet meadow	shrub-carr	low prairie	hardwood swamp	
shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog												
floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen												
X wet meadow	shrub-carr	low prairie	hardwood swamp													
Estimated size of wetland in acres:	Unknown															

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity	X				
Wildlife Habitat	X				
Fishery Habitat	X				
Flood/Stormwater Attenuation	X				
Water Quality Protection	X				
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features/"Red Flags":

SITE DESCRIPTION

I. HYDROLOGIC SETTING

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A. Describe the geomorphology of the wetland: Part is a farmed wetland; sections have regrown hydrophytic vegetation

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

May be influenced by drain tiles

C. **N** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☐ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

Page 147

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by:
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-16 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: **LmB: Lamartine silt loam: Mesic Aquollic Hapludalfs**

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	
Agricultural/Cropland	X
Agricultural/Grazing	X
Forested	
Grassed Recreation Areas/Parks	
Old Field	
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **N** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☐ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **N** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

Killdeer; robins

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **N** Does the surrounding upland habitat likely support a variety of animal species?

5. **N** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **Y** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **N** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **N** Is the wetland providing habitat that is scarce to the region?

1. **N** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **N** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **N** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **N** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. Y | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. Y | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **N** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	no
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	no
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 17
Location:	County: ; 1/4, 1/4, Section 8 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 5, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	T3/E2K, S3/E1K					
Wetland Type:	shallow open water	deep marsh	X	shallow marsh	seas. flooded basin	bog
	X floodplain forest	alder thicket	X	sedge meadow	coniferous swamp	fen
	X wet meadow	X shrub-carr		low prairie	hardwood swamp	
Estimated size of wetland in acres:	Unknown					

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity			X		
Wildlife Habitat			X		
Fishery Habitat		X			
Flood/Stormwater Attenuation			X		
Water Quality Protection			X		
Shoreline Protection					X
Groundwater			X		
Aesthetics/Recreation/Education			X		

List any Special Features/"Red Flags":

SITE DESCRIPTION

I. HYDROLOGIC SETTING

Page 155

A. Describe the geomorphology of the wetland: Large wetland complex associated with Pebble Creek

☐ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **N** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

Hydrology may have been altered when road was originally built

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **Y** Does the wetland have standing water, and if so what is the average depth in inches? Varies Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☒ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

Wetland abuts Pebble Creek

II. VEGETATION

A. Identify the vegetation communities present and the dominant species.

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	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Typha</i> spp., <i>Phalaris arundinacea</i>
	shrub community dominated by: <i>Salix interior</i> , <i>Salix discolor</i> , <i>Cornus amomum</i> , <i>Cornus sericea</i>
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by: <i>Carex stricta</i>
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-17 in Appendix D.

III. SOILS

A. SCS Soil Map Classification:

Sm: Sebewa silt loam: Mesic Typic Argiaquolls

MmA: Matherton silt loam: Mesic Udollic EndoEndoaqualfs

Pa: Palms muck: Mesic Terric Haplosaprists

ShB: Saylesville silt loam: Mesic Typic Hapludalfs

MzfA: Mundelein silt loam: Mesic Aquic Argiudolls

Ww: Wet alluvial land: Mesic Cumulic Haplaquolls

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?
- Soil description: _____
- Depth of mottling/gleying: _____
- Depth of A horizon: _____
- Munsell color of matrix and mottles:
 - Matrix below the A horizon (25 cm depth): _____
 - Mottles: _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	X
Agricultural/Grazing	
Forested	X
Grassed Recreation Areas/Parks	
Old Field	X
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

Reed canary grass and cattail are also present in patches

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

deer trails, tracks and scat; Heard chorus frogs and red-winged blackbirds

2. **Y** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?

3. **Y N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____% **UNKNOWN**

4. **Y** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **Y** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **Y** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **Y** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **Y** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **N** Is the wetland providing habitat that is scarce to the region?

Flood and Stormwater Storage/Attenuation

Page 160

1. **N** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **Y** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **N** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **Y** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **Y** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

Page 161

1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **Y** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. Y | Trash? | h. Y | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **Y** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **Y** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **Y** Long views within the wetland?
- b. **Y** Long views in the viewshed adjacent to the wetland?
- c. **Y** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	maybe
Food harvesting	unknown	maybe
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 18
Location:	County: Waukesha ; 1/4, 1/4, Section 17 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 5, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:						
Wetland Type:	shallow open water	deep marsh	X	shallow marsh	seas. flooded basin	bog
	X floodplain forest	alder thicket	X	sedge meadow	coniferous swamp	fen
	X wet meadow	X shrub-carr		low prairie	hardwood swamp	
Estimated size of wetland in acres: Unknown						

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity			X		
Wildlife Habitat			X		
Fishery Habitat		X			
Flood/Stormwater Attenuation			X		
Water Quality Protection			X		
Shoreline Protection					X
Groundwater			X		
Aesthetics/Recreation/Education			X		

List any Special Features/"Red Flags":

SITE DESCRIPTION

I. HYDROLOGIC SETTING

Page 164

A. Describe the geomorphology of the wetland: Large wetland mosaic associated with Pebble Creek

☐ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **N** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **Y** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **Y** Does the wetland have standing water, and if so what is the average depth in inches? Varies Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

Wetlands about Pebble Creek

II. VEGETATION

Page 165

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Symplocarpus foetidus, Typha spp., Phalaris arundinacea</i>
	shrub community dominated by: <i>Cornus sericea, Salix discolor</i>
	deciduous broad-leaved tree community dominated by: <i>Populus tremuloides</i>
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by: <i>Carex stricta</i>
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-18 in Appendix D.

III. SOILS

A. SCS Soil Map Classification:

PrA: Pistakee silt loam: Mesic Aquic Udifluvents
HtB: Houghton muck: Mesic Typic Haplosaprists
Wa: Wallkill silt loam: Mesic Fluvaquentic Humaquepts
LmB: Lamartine silt loam: Mesic Aquollic Hapludalfs
Sm: Sebewa silt loam: Mesic Typic Argiaquolls
Pa: Palms muck: Mesic Terric Haplosaprists
Ww: Wet alluvial land: Mesic Cumulic Haplaquolls
BsA: Brookston silt loam: Mesic Typic Argiaquolls

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?
- Soil description: _____
- Depth of mottling/gleying: _____
- Depth of A horizon: _____
- Munsell color of matrix and mottles:
 - Matrix below the A horizon (25 cm depth): _____
 - Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	X
Grassed Recreation Areas/Parks	
Old Field	X
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?
2. **Y** Is the wetland plant community regionally scarce or rare?
Sedge meadow component is regionally rare

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland: Red-tailed hawk, vole; song birds
deer trails, tracks and scat
2. **Y** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?
3. **Y N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? Unknown %
4. **Y** Does the surrounding upland habitat likely support a variety of animal species?
5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?
6. **Y** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?
7. **Y** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?
8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?
9. **Y** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?
10. **Y** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?
11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?
12. **N** Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **Y** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **N** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **Y** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **N** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **Y** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **Y** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **Y** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. Y | Trash? | h. Y | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **Y** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **Y** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **Y** Long views within the wetland?
- b. **Y** Long views in the viewshed adjacent to the wetland?
- c. **Y** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	maybe
Food harvesting	unknown	maybe
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 19
Location:	County: Waukesha ; 1/4, 1/4, Section 17 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 14, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:	Upland				
Wetland Type:	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog
	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen
	wet meadow	X shrub-carr	low prairie	X hardwood swamp	
Estimated size of wetland in acres:	Unknown				

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat	X				
Fishery Habitat	X				
Flood/Stormwater Attenuation	X				
Water Quality Protection		X			
Shoreline Protection					X
Groundwater	X				
Aesthetics/Recreation/Education	X				

List any Special Features/"Red Flags":

SITE DESCRIPTION

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I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: A hillside seepage wetland.

Does not appear to have surface water connection to downslope wetlands.

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. N Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

C. N Does the wetland have an inlet, outlet, or both (underline those that apply)?

No apparent surface water connection.

D. N Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. N Does the wetland have standing water, and if so what is the average depth in inches? _____ Approximately how much of the wetland is inundated? _____ %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☐ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. N Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

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A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by:
	shrub community dominated by: <i>Salix discolor, Euisetum hyemale, Juncus tenuis, Poa pratensis</i>
	deciduous broad-leaved tree community dominated by: <i>Populus deltoides, Rhamnus catharica</i>
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-19 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: LmB: Lamartine silt loam: Mesic Aquollic Hapludalfs

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	X
Grassed Recreation Areas/Parks	
Old Field	
Highways or Roads	
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y N** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

Heard a male turkey calling

2. **N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **Y** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **N** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **N** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **N** Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **N** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **N** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **N** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **N** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

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1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **N** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **N** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. Y | Pollution? |
| b. Y | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. Y | Trash? | h. Y | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **N** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **Y** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **N** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	maybe
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	no
Food harvesting	unknown	unlikely
Other (list)		

11. **Y N** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 20
Location:	County: Waukesha ; 1/4, 1/4, Section 17 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 14, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification: S3/E2K					
Wetland Type:	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog
	X floodplain forest	alder thicket	X sedge meadow	coniferous swamp	fen
	wet meadow	X shrub-carr	low prairie	hardwood swamp	
Estimated size of wetland in acres: Unknown					

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat		X			
Fishery Habitat	X				
Flood/Stormwater Attenuation		X			
Water Quality Protection		X			
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education		X			

List any Special Features/"Red Flags":

SITE DESCRIPTION

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I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: Narrow, emergent and forested riparian wetland that abuts Pebble Creek.

☐ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☒ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)? **Culverts and roadways**

The area receives additional water from drainage culverts under Hwy X.

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **N** Does the wetland have standing water, and if so what is the average depth in inches? Approximately how much of the wetland is inundated? %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

abuts Pebble Creek

II. VEGETATION

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A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by:
	shrub community dominated by: <i>Salix interior, Cornus sericea, Populus deltoides, Phalaris arundinacea</i>
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by: <i>Carex stricta</i>
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-20 in Appendix D.

III. SOILS

Ww: Wet alluvial land: Mesic Cumulic Haplaquolls

A. SCS Soil Map Classification: Hm: Hochheim loam: Mesic Typic Argiudolls

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	
Agricultural/Cropland	
Agricultural/Grazing	
Forested	
Grassed Recreation Areas/Parks	
Old Field	X
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y N** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☒ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y N** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

2. **Y N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

Red-winged blackbird; goldfinch

2. **Y** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **N** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **N** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **Y** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **Y** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **N** Is the wetland providing habitat that is scarce to the region?

1. **Y** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?
2. **Y** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?
3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?
4. **N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?
5. **N** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].
6. **Y** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?
2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?
3. **Y** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?
4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?
5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?
6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

Page 188

1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **Y N** Is any part of the wetland in public or conservation ownership?
Unknown
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. Y | Roads? | f. N | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. Y | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **Y** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **Y** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **Y** Long views within the wetland?
- b. **Y** Long views in the viewshed adjacent to the wetland?
- c. **Y** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	no
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	maybe
Food harvesting	unknown	maybe
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

Wisconsin Department of Natural Resources

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RAPID ASSESSMENT METHODOLOGY FOR EVALUATING
WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:	Wetland - 21
Location:	County: Waukesha ; 1/4, 1/4, Section 17 , Township 6N , Range 19E
Project Name:	Waukesha Bypass
Evaluator(s):	L. Giese
Date(s) of Site Visit(s):	April 14, 2010

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g., after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

Early spring - limiting vegetation identification

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory Classification:					
Wetland Type:	shallow open water	deep marsh	shallow marsh	seas. flooded basin	bog
	floodplain forest	alder thicket	sedge meadow	coniferous swamp	fen
	X wet meadow	X shrub-carr	low prairie	hardwood swamp	
Estimated size of wetland in acres: Unknown					

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity		X			
Wildlife Habitat		X			
Fishery Habitat					X
Flood/Stormwater Attenuation		X			
Water Quality Protection		X			
Shoreline Protection					X
Groundwater		X			
Aesthetics/Recreation/Education		X			

List any Special Features/"Red Flags":

SITE DESCRIPTION

Page 191

I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland: Headwater wetland.

☒ Depressional (includes slopes, potholes, small lakes, kettles, etc.)

☐ Riverine

☐ Lake Fringe

☐ Extensive Peatland

B. **Y** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (underline those that apply)?

May have been altered by past road construction.

C. **Y** Does the wetland have an inlet, outlet, or both (underline those that apply)?

D. **N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soil layer, or pore linings (underline those that apply)?

E. **Y** Does the wetland have standing water, and if so what is the average depth in inches? 2" Approximately how much of the wetland is inundated? 5 %

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

☐ Permanently Flooded

☒ Seasonally Flooded (water absent at end of growing season)

☒ Saturated (surface water seldom present)

☐ Artificially Flooded

☐ Artificially Drained

G. **Y** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

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A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by: <i>Typha</i> spp., <i>Phalaris arundinacea</i>
	shrub community dominated by: <i>Salix interior</i> , <i>Salix discolor</i>
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog:
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

Please refer to plant species list for W-21 in Appendix D.

III. SOILS

A. SCS Soil Map Classification: Na: Navan silt loam: Mesic Typic Argiaquolls

B. Field description: N/A

_____ Organic (histosol)? If so, is it a muck or peat?

_____ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (underline those that apply)?

• Soil description: _____

• Depth of mottling/gleying: _____

• Depth of A horizon: _____

• Munsell color of matrix and mottles:

- Matrix below the

A horizon (25 cm depth): _____

- Mottles _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? Not Calculated

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B. What are the surrounding land uses? Percentages were not calculated.

LAND USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	X
Agricultural/Cropland	
Agricultural/Grazing	
Forested	
Grassed Recreation Areas/Parks	
Old Field	X
Highways or Roads	X
Other (Specify)	

VI. SITE SKETCH

See Figure 2, Appendix A

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform these functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgment to rate the significance. The ratings should be recorded on page 1 of the assessment.

Special Features/Red Flags

1. **Y N** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ☐ a. Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, (including trout streams, their tributaries, and trout lakes);
- ☐ b. Lakes Michigan and Superior and the Mississippi River;
- ☐ c. State of federal designated wild and scenic river;
- ☐ d. Designated state riverway;
- ☐ e. Designated state scenic urban waterway;
- ☐ f. Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advance delineation and identification study;
- ☐ g. Calcareous fen;
- ☐ h. State park, forest, trail or recreation area;
- ☐ i. State or federal fish and wildlife refuges and fish and wildlife management areas;
- ☐ j. State or federal designated wilderness area;
- ☐ k. Wild rice water listed in ch. NR 19.09, Wis. Adm. Code;
- ☐ l. Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

2. **Y N** According to the National Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

Unknown - however no rare species were observed by Graef during the site visit.

3. **N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

1. **Y** Does the wetland support a variety of native plant species (i.e., not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

There is a significant amount of reed canary grass and cattail.

2. **N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidence (e.g., tracks, scat, nest/burrows, calls), or expected to use the wetland:

Deer running through; deer trails and tracks. Red-winged blackbird

2. **Y** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersions of those vegetation types?

3. **N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____ %

4. **N** Does the surrounding upland habitat likely support a variety of animal species?

5. **N** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that require large home ranges (e.g., bear, woodland passerines)?

7. **N** Is the surrounding habitat and/or the wetland a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **N** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **N** Can the wetland provide significant food base for fish and wildlife (e.g., insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pond weeds, watermeal, bulrushes, bur reeds, arrowheads, smartweeds, millets...)?

11. **Y** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **N** Is the wetland providing habitat that is scarce to the region?

1. **N** Are there steep slopes, large impervious areas, moderate slopes with row croppings, or areas with severe overgrazing within the watershed (underline those that apply)?

Roadways

2. **Y** Does the wetland significantly reduce run-off velocity due to its size, configurations braided flow patterns, or vegetation type and density?

3. **N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?

4. **Y** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions? Roadways

5. **Y** Considering the size of the wetland area in relation to the size of its watershed, at any time of year is water likely to reach the wetland's storage capacity (i.e., the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the runoff from a 2-year, 24-hour storm event].

6. **N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e., is the wetland located in the mid- or lower reaches of the watershed)?

Water Quality Protection

1. **Y** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (underline that which applies)?

2. **Y** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?

3. **N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?

4. **Y** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?

5. **Y** Is the position of the wetland in the landscape such that runoff is held or filtered before entering a surface water?

6. **N** Are algal blooms, heavy macrophyte growth or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

Page 197

1. **N** Is the wetland a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.
2. **Y N** Is the shoreline exposed to constant wave action caused by a long wind fetch or boat traffic?
3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decreases wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?
4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice flows?
5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators or springs such as marl soil, or vegetation indicators such as water cress or marsh marigold present that tend to indicate the presence of groundwater springs?
2. **Y** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?
3. **N** Related to recharge, is the wetland located on or near a groundwater divide (e.g., a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y** Is the wetland visible from any of the following kinds of vantage points: roads public lands, houses, and/or businesses (underline all that apply)?
2. **Y** Is the wetland in or near any population centers?
3. **N** Is any part of the wetland in public or conservation ownership?
4. **Y** Does the public have direct access to the wetland from public roads or waterways (underline those that apply)?

5. Is the wetland itself relatively free of obvious human influences, such as:

- | | | | |
|-------------|-------------------|-------------|--------------------------------------|
| a. Y | Buildings? | e. N | Pollution? |
| b. N | Roads? | f. Y | Filling? |
| c. Y | Other structures? | g. Y | Dredging/draining? |
| d. N | Trash? | h. N | Domination by non-native vegetation? |

6. Is the surrounding viewshed relatively free of obvious human influences, such as:

- a. **N** Buildings?
- b. **N** Roads?
- c. **N** Other structures?

7. **Y** Is the wetland organized into a variety of visible separate areas of similar vegetation, color and/or texture (including areas of open water)?

8. **Y** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present?

- a. **N** Long views within the wetland?
- b. **N** Long views in the viewshed adjacent to the wetland?
- c. **Y** Convoluted edges within and/or around the wetland border?
- d. **Y** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography	unknown	maybe
Hiking/biking/skiing	unknown	no
Hunting/fishing/trapping	unknown	maybe
Boating/canoeing	unknown	no
Food harvesting	unknown	unlikely
Other (list)		

11. **Y** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (underline that which applies)?

APPENDIX D

Plant Data



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/30/2010

Plant Community Area: W-1

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Fresh (Wet) Meadow (wetland swale)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input type="checkbox"/>	Typha x glauca	blue cattail	OBL	
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Polygonum lapathifolium var. lapathifolium	nodding smartweed	FACW plus	2

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index

\bar{C} = Mean C Value

N = Number of native taxa

TOTAL = 2

N = 1

\bar{C} = 2.0

FQI = 2.0



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/30/2010

Plant Community Area: W-2

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Floodplain Forest

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Angelica atropurpurea	great angelica	OBL	6
<input type="checkbox"/>	Cornus amomum ssp. obliqua	silky dogwood	FACW plus	4
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input checked="" type="checkbox"/>	Fraxinus pennsylvanica	green ash	FACW	2
<input checked="" type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Aster lateriflorus var. lateriflorus	common calico aster	FACW minus	3
<input type="checkbox"/>	Elymus virginicus var. virginicus	Virginia wild rye	FACW minus	6
<input type="checkbox"/>	Helianthus grosseserratus	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	Rubus idaeus ssp. strigosus	wild red raspberry	FACW minus	3
<input checked="" type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Ambrosia trifida var. trifida	giant ragweed	FAC plus	0
<input type="checkbox"/>	Carex grisea	inflated gray sedge	FAC plus	4
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input type="checkbox"/>	Prunella vulgaris var. vulgaris	ovate-leaved heal-all	FAC	1
<input type="checkbox"/>	Prunus virginiana var. virginiana	choke cherry	FAC minus	3
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Allium canadense var. canadense	wild garlic	FACU	4
<input type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	48
N =	17
\bar{C} =	2.8
FQI =	11.6



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: W-3

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Floodplain Forest

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input type="checkbox"/>	Cicuta maculata	water hemlock	OBL	6
<input checked="" type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input type="checkbox"/>	Fraxinus pennsylvanica	green ash	FACW	2
<input checked="" type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Aster lateriflorus var. lateriflorus	common calico aster	FACW minus	3
<input type="checkbox"/>	Elymus virginicus var. virginicus	Virginia wild rye	FACW minus	6
<input type="checkbox"/>	Rubus idaeus ssp. strigosus	wild red raspberry	FACW minus	3
<input checked="" type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input checked="" type="checkbox"/>	Carex grisea	inflated gray sedge	FAC plus	4
<input checked="" type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input type="checkbox"/>	Allium canadense var. canadense	wild garlic	FACU	4
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Ribes cynosbati	prickly wild gooseberry	UPL	3
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	
<input type="checkbox"/>	Crataegus sp.	hawthorne	CBD	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	40
N =	13
C =	3.1
FQI =	11.1



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: W-4

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Fresh (Wet) Meadow (riparian)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index

\bar{C} = Mean C Value

N = Number of native taxa

TOTAL = 1

N = 1

\bar{C} = 1.0

FQI = 1.0



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: W-5

Observer(s): Julie A. Paschal

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed *Fresh (Wet) Meadow (riparian)*

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Ambrosia trifida var. trifida	giant ragweed	FAC plus	0

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	2
N =	2
C =	1.0
FQI =	1.4



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/15/2010

Plant Community Area: W-5A

Observer(s): Tina Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed *Fresh (Wet) Meadow*

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input checked="" type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
 N = Number of native taxa

TOTAL =

$N = 0$

$\bar{C} =$

$FQI =$



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: W-6

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Hardwood Swamp / Shrub Carr / Shallow Marsh

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input checked="" type="checkbox"/>	Salix interior	sandbar willow	OBL	2
<input type="checkbox"/>	Salix nigra	black willow	OBL	4
<input checked="" type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input checked="" type="checkbox"/>	Typha latifolia	broad-leaf cattail	OBL	1
<input checked="" type="checkbox"/>	Typha x glauca	blue cattail	OBL	
<input type="checkbox"/>	Aster firmus	swamp aster	FACW plus	6
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input checked="" type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Ribes americanum	wild black currant	FACW	4
<input checked="" type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input type="checkbox"/>	Solidago gigantea	giant goldenrod	FACW	3
<input type="checkbox"/>	Viburnum trilobum	highbush cranberry	FACW	6
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input checked="" type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Urtica dioica ssp. dioica	European stinging nettle	FAC plus	1
<input checked="" type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Pastinaca sativa var. sativa	wild parsnip	UPL	
<input type="checkbox"/>	Carex spp.	sedges	CBD	
<input type="checkbox"/>	Polygonum sp.	smartweed	CBD	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	41
N =	15
C =	2.7
FQI =	10.6



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: W-7

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Fresh (Wet) Meadow / Shallow Marsh

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input checked="" type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Rumex crispus	curled dock	FAC plus	
<input type="checkbox"/>	Barbarea vulgaris var. vulgaris	common winter cress	FAC	
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Asclepias syriaca	common milkweed	UPL	1
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	2
N =	2
C =	1.0
FQI =	1.4



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: W-8

Observer(s): Julie A. Paschal

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Hardwood Swamp

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input checked="" type="checkbox"/>	Carex lacustris	common lake sedge	OBL	6
<input type="checkbox"/>	Cornus amomum ssp. obliqua	silky dogwood	FACW plus	4
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Ribes americanum	wild black currant	FACW	4
<input type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input type="checkbox"/>	Solidago gigantea	giant goldenrod	FACW	3
<input checked="" type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input checked="" type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Salix sp.	willow	CBD	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	26
N =	8
\bar{C} =	3.3
FQI =	9.2



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: W-9

Observer(s): Julie A. Paschal

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Fresh (Wet) Meadow

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Angelica atropurpurea	great angelica	OBL	6
<input type="checkbox"/>	Lycopus americanus	American bugleweed	FACW plus	4
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Helianthus grosseserratus	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Geum aleppicum	yellow avens	FAC plus	3
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Hesperis matronalis	dame's rocket	UPL	
<input type="checkbox"/>	Salix sp.	willow	CBD	

$$FQI = \bar{C} \sqrt{N}$$

Where: \bar{C} = Mean C Value
 N = Number of native taxa

TOTAL =	17
\bar{C} =	6
\bar{C} =	2.8
FQI =	6.9



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: W-10

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shrub Carr/Fresh (wet) Meadow/Sedge Meadow/Shallow Marsh

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Angelica atropurpurea	great angelica	OBL	6
<input checked="" type="checkbox"/>	Carex stricta var. stricta	common hummock sedge	OBL	7
<input type="checkbox"/>	Lemna minor	lesser duckweed	OBL	4
<input type="checkbox"/>	Nasturtium officinale	true water cress	OBL	
<input type="checkbox"/>	Symplocarpus foetidus	skunk cabbage	OBL	8
<input checked="" type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input checked="" type="checkbox"/>	Typha latifolia	broad-leaf cattail	OBL	1
<input checked="" type="checkbox"/>	Typha x glauca	blue cattail	OBL	
<input type="checkbox"/>	Aster firmus	swamp aster	FACW plus	6
<input type="checkbox"/>	Cornus amomum ssp. obliqua	silky dogwood	FACW plus	4
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input type="checkbox"/>	Solidago gigantea	giant goldenrod	FACW	3
<input type="checkbox"/>	Viburnum trilobum	highbush cranberry	FACW	6
<input checked="" type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Euthamia graminifolia var. graminifolia	hairy grass-leaved goldenrod	FACW minus	4
<input type="checkbox"/>	Helianthus grosseserratus	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Urtica dioica ssp. dioica	European stinging nettle	FAC plus	1
<input type="checkbox"/>	Viburnum lentago	nannyberry	FAC plus	4
<input type="checkbox"/>	Juncus tenuis	path rush	FAC	1
<input type="checkbox"/>	Populus tremuloides	quaking aspen	FAC	2
<input type="checkbox"/>	Salix x rubens	hybrid crack willow	FAC	
<input type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Cirsium arvense var. arvense	Canada thistle	FACU	
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input checked="" type="checkbox"/>	Agrostis gigantea	redtop grass	NI	



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: W-10

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shrub Carr/Fresh (wet) Meadow/Sedge Meadow/Shallow Marsh

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index

C = Mean C Value

N = Number of native taxa

TOTAL = 66

N = 19

C = 3.5

FQI = 15.1



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: W-11

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shallow Marsh / Fresh (wet) Meadow / Farmed Wetland

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Epilobium coloratum	cinnamon willow-herb	OBL	3
<input type="checkbox"/>	Salix interior	sandbar willow	OBL	2
<input type="checkbox"/>	Salix nigra	black willow	OBL	4
<input checked="" type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input checked="" type="checkbox"/>	Typha latifolia	broad-leaf cattail	OBL	1
<input checked="" type="checkbox"/>	Typha x glauca	blue cattail	OBL	
<input type="checkbox"/>	Aster firmus	swamp aster	FACW plus	6
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Phragmites australis	giant reed grass	FACW plus	1
<input type="checkbox"/>	Polygonum lapathifolium var. lapathifolium	nodding smartweed	FACW plus	2
<input type="checkbox"/>	Aster lanceolatus var. simplex	panicked aster	FACW	4
<input type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input type="checkbox"/>	Solidago gigantea	giant goldenrod	FACW	3
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Rubus idaeus ssp. strigosus	wild red raspberry	FACW minus	3
<input type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Rumex crispus	curled dock	FAC plus	
<input type="checkbox"/>	Barbarea vulgaris var. vulgaris	common winter cress	FAC	
<input type="checkbox"/>	Juncus tenuis	path rush	FAC	1
<input checked="" type="checkbox"/>	Setaria glauca	yellow foxtail	FAC	
<input type="checkbox"/>	Aster pilosus var. pilosus	hairy aster	FACU plus	1
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input checked="" type="checkbox"/>	Setaria faberi	giant foxtail	FACU plus	
<input type="checkbox"/>	Ambrosia artemisiifolia var. elatior	common ragweed	FACU	0
<input type="checkbox"/>	Cirsium arvense var. arvense	Canada thistle	FACU	
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Abutilon theophrasti	velvet-leaf	FACU minus	
<input type="checkbox"/>	Asclepias syriaca	common milkweed	UPL	1
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Salix sp.	willow	CBD	



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: W-11

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shallow Marsh / Fresh (wet) Meadow / Farmed Wetland

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	37
N =	18
C =	2.1
FQI =	8.7



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: W-11A (Ditch)

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed *Fresh (Wet) Meadow (Ditch)*

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input checked="" type="checkbox"/>	Cornus amomum ssp. obliqua	silky dogwood	FACW plus	4
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input checked="" type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Helianthus grosseserratus	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index

C = Mean C Value

N = Number of native taxa

TOTAL = 15

N = 7

C = 2.1

FQI = 5.7



FLORISTIC QUALITY ASSESSMENT
Waukesha Bypass - STH 59 to IH-94
2010-0001.00
4/1/2010

Plant Community Area: W-12

Observer(s): Julie A. Paschal

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shallow Marsh/Fresh (Wet) Meadow

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input type="checkbox"/>	Angelica atropurpurea	great angelica	OBL	6
<input type="checkbox"/>	Calamagrostis canadensis var. canadensis	common Canada bluejoint	OBL	5
<input checked="" type="checkbox"/>	Carex stricta var. stricta	common hummock sedge	OBL	7
<input checked="" type="checkbox"/>	Carex trichocarpa	hairy-fruited lake sedge	OBL	7
<input type="checkbox"/>	Eupatorium maculatum var. maculatum	spotted Joe Pye weed	OBL	4
<input checked="" type="checkbox"/>	Lemna minor	lesser duckweed	OBL	4
<input type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input type="checkbox"/>	Cornus amomum ssp. obliqua	silky dogwood	FACW plus	4
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Solidago gigantea	giant goldenrod	FACW	3
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Helianthus grosseserratus	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	Physocarpus opulifolius var. opulifolius	eastern ninebark	FACW minus	6
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Rosa blanda var. glandulosa	early wild rose	FACU	4

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	61
N =	16
\bar{C} =	3.8
FQI =	15.3



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: W-13

Observer(s): Julie A. Paschal

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Fresh (Wet) Meadow

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input type="checkbox"/>	Angelica atropurpurea	great angelica	OBL	6
<input type="checkbox"/>	Calamagrostis canadensis var. canadensis	common Canada bluejoint	OBL	5
<input checked="" type="checkbox"/>	Carex stricta var. stricta	common hummock sedge	OBL	7
<input checked="" type="checkbox"/>	Carex trichocarpa	hairy-fruited lake sedge	OBL	7
<input checked="" type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input type="checkbox"/>	Cornus amomum ssp. obliqua	silky dogwood	FACW plus	4
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Verbena hastata var. hastata	blue vervain	FACW plus	3
<input type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input type="checkbox"/>	Solidago gigantea	giant goldenrod	FACW	3
<input type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Salix fragilis	crack willow	FAC plus	
<input type="checkbox"/>	Ambrosia artemisiifolia var. elatior	common ragweed	FACU	0
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	43
N =	12
C =	3.6
FQI =	12.4



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: W-14

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Fresh (Wet) Meadow

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Carex stricta var. stricta	common hummock sedge	OBL	7
<input checked="" type="checkbox"/>	Spartina pectinata	prairie cordgrass	FACW plus	5
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input checked="" type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Helianthus grosseserratus	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	Sambucus canadensis	common elderberry	FACW minus	3
<input type="checkbox"/>	Viburnum lentago	nannyberry	FAC plus	4
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Monarda fistulosa var. fistulosa	wild bergamot	FACU	3
<input checked="" type="checkbox"/>	Silphium terebinthinaceum	prairie dock	FACU	7
<input type="checkbox"/>	Corylus americana	American hazelnut	FACU minus	5
<input checked="" type="checkbox"/>	Dipsacus sylvestris	common teasel	NI	
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	
<input checked="" type="checkbox"/>	Carex sp.	sedge	CBD	
<input checked="" type="checkbox"/>	Rubus sp.	wild blackberry	CBD	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	43
N =	11
C =	3.9
FQI =	13.0



FLORISTIC QUALITY ASSESSMENT
Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: W-15

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Hardwood Swamp

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Salix nigra	black willow	OBL	4
<input checked="" type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Echinocystis lobata	wild cucumber	FACW	2
<input type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input checked="" type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Viburnum lentago	nannyberry	FAC plus	4
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	19
N =	7
\bar{C} =	2.7
FQI =	7.2



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/2/2010

Plant Community Area: W-17

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shallow Marsh/ Sedge Meadow/ Shrub Carr / Fresh (wet) Meadow

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Angelica atropurpurea	great angelica	OBL	6
<input type="checkbox"/>	Calamagrostis canadensis var. canadensis	common Canada bluejoint	OBL	5
<input type="checkbox"/>	Carex lacustris	common lake sedge	OBL	6
<input type="checkbox"/>	Carex pellita	broad-leaved woolly sedge	OBL	4
<input checked="" type="checkbox"/>	Carex stricta var. stricta	common hummock sedge	OBL	7
<input type="checkbox"/>	Carex trichocarpa	hairy-fruited lake sedge	OBL	7
<input type="checkbox"/>	Carex vulpinoidea var. vulpinoidea	brown fox sedge	OBL	2
<input type="checkbox"/>	Cicuta maculata	water hemlock	OBL	6
<input type="checkbox"/>	Eupatorium maculatum var. maculatum	spotted Joe Pye weed	OBL	4
<input type="checkbox"/>	Iris virginica var. shrevei	southern blue flag	OBL	5
<input type="checkbox"/>	Leersia oryzoides	rice cutgrass	OBL	3
<input type="checkbox"/>	Lemna minor	lesser duckweed	OBL	4
<input type="checkbox"/>	Lythrum salicaria	purple loosestrife	OBL	
<input type="checkbox"/>	Polygonum amphibium var. emersum	terrestrial water knotweed	OBL	4
<input type="checkbox"/>	Rumex orbiculatus var. borealis	great water dock	OBL	8
<input type="checkbox"/>	Rumex verticillatus	swamp dock	OBL	6
<input checked="" type="checkbox"/>	Salix interior	sandbar willow	OBL	2
<input type="checkbox"/>	Scutellaria lateriflora var. lateriflora	mad-dog skullcap	OBL	5
<input type="checkbox"/>	Solidago riddellii	Riddell's goldenrod	OBL	7
<input checked="" type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input checked="" type="checkbox"/>	Typha latifolia	broad-leaf cattail	OBL	1
<input checked="" type="checkbox"/>	Typha x glauca	blue cattail	OBL	
<input type="checkbox"/>	Aster firmus	swamp aster	FACW plus	6
<input type="checkbox"/>	Carex granularis var. haleana	Hale's granular sedge	FACW plus	3
<input checked="" type="checkbox"/>	Cornus amomum ssp. obliqua	silky dogwood	FACW plus	4
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Pycnanthemum virginianum	common mountain mint	FACW plus	6
<input type="checkbox"/>	Verbena hastata var. hastata	blue vervain	FACW plus	3
<input type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input type="checkbox"/>	Aster novae-angliae	New England aster	FACW	3
<input checked="" type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Echinocystis lobata	wild cucumber	FACW	2
<input type="checkbox"/>	Impatiens capensis	orange jewelweed	FACW	2



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/2/2010

Plant Community Area: W-17

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shallow Marsh/ Sedge Meadow/ Shrub Carr / Fresh (wet) Meadow

<input type="checkbox"/>	<i>Mentha arvensis</i> var. <i>canadensis</i>	wild mint	FACW	3
<input checked="" type="checkbox"/>	<i>Salix discolor</i>	pussy willow	FACW	2
<input type="checkbox"/>	<i>Solidago gigantea</i>	giant goldenrod	FACW	3
<input type="checkbox"/>	<i>Acer negundo</i> var. <i>negundo</i>	common box elder	FACW minus	0
<input type="checkbox"/>	<i>Arisaema triphyllum</i> ssp. <i>triphyllum</i>	jack-in-the-pulpit	FACW minus	7
<input type="checkbox"/>	<i>Cornus foemina</i> ssp. <i>racemosa</i>	gray dogwood	FACW minus	2
<input type="checkbox"/>	<i>Euthamia graminifolia</i> var. <i>graminifolia</i>	hairy grass-leaved goldenrod	FACW minus	4
<input type="checkbox"/>	<i>Helianthus grosseserratus</i>	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	<i>Ulmus americana</i>	American elm	FACW minus	3
<input type="checkbox"/>	<i>Vitis riparia</i>	riverbank grape	FACW minus	2
<input type="checkbox"/>	<i>Carex grisea</i>	inflated gray sedge	FAC plus	4
<input type="checkbox"/>	<i>Populus deltoides</i> ssp. <i>deltoides</i>	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	<i>Rhamnus frangula</i>	glossy buckthorn	FAC plus	
<input type="checkbox"/>	<i>Salix fragilis</i>	crack willow	FAC plus	
<input type="checkbox"/>	<i>Toxicodendron radicans</i> ssp. <i>negundo</i>	common poison ivy	FAC plus	4
<input type="checkbox"/>	<i>Urtica dioica</i> ssp. <i>dioica</i>	European stinging nettle	FAC plus	1
<input type="checkbox"/>	<i>Viburnum lentago</i>	nannyberry	FAC plus	4
<input type="checkbox"/>	<i>Alliaria petiolata</i>	garlic mustard	FAC	
<input type="checkbox"/>	<i>Cryptotaenia canadensis</i>	Canada honewort	FAC	4
<input type="checkbox"/>	<i>Geum canadense</i> var. <i>canadense</i>	white avens	FAC	2
<input type="checkbox"/>	<i>Populus tremuloides</i>	quaking aspen	FAC	2
<input type="checkbox"/>	<i>Prunella vulgaris</i> var. <i>vulgaris</i>	ovate-leaved heal-all	FAC	1
<input type="checkbox"/>	<i>Solanum dulcamara</i> var. <i>dulcamara</i>	bittersweet nightshade	FAC	
<input type="checkbox"/>	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	wild strawberry	FAC minus	1
<input type="checkbox"/>	<i>Poa pratensis</i>	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	<i>Smilacina stellata</i>	starry false Solomon's seal	FAC minus	5
<input type="checkbox"/>	<i>Rhamnus cathartica</i>	common buckthorn	FACU plus	
<input type="checkbox"/>	<i>Rubus allegheniensis</i> var. <i>allegheniensis</i>	common blackberry	FACU plus	2
<input type="checkbox"/>	<i>Cirsium arvense</i> var. <i>arvense</i>	Canada thistle	FACU	
<input type="checkbox"/>	<i>Cirsium arvense</i> var. <i>arvense</i>	Canada thistle	FACU	
<input type="checkbox"/>	<i>Juniperus virginiana</i>	eastern red cedar	FACU	3
<input type="checkbox"/>	<i>Solidago canadensis</i> var. <i>scabra</i>	tall goldenrod	FACU	1
<input type="checkbox"/>	<i>Daucus carota</i>	Queen Anne's lace	UPL	
<input checked="" type="checkbox"/>	<i>Agrostis gigantea</i>	redtop grass	NI	



FLORISTIC QUALITY ASSESSMENT
Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/2/2010

Plant Community Area: W-17

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shallow Marsh/ Sedge Meadow/ Shrub Carr / Fresh (wet) Meadow

<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI
<input type="checkbox"/>	Crataegus sp.	hawthorne	CBD

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	190
N =	53
\bar{C} =	3.6
FQI =	26.1



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/12/2010

Plant Community Area: W-18

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Sedge and Wet Meadows/Shrub Carr/Hardwood Swamp/Sh Marsh

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Angelica atropurpurea	great angelica	OBL	6
<input type="checkbox"/>	Asclepias incarnata ssp. incarnata	marsh milkweed	OBL	5
<input type="checkbox"/>	Calamagrostis canadensis var. canadensis	common Canada bluejoint	OBL	5
<input type="checkbox"/>	Caltha palustris var. palustris	common marsh marigold	OBL	6
<input type="checkbox"/>	Carex hystericina	porcupine sedge	OBL	3
<input checked="" type="checkbox"/>	Carex lacustris	common lake sedge	OBL	6
<input type="checkbox"/>	Carex pellita	broad-leaved woolly sedge	OBL	4
<input checked="" type="checkbox"/>	Carex stricta var. stricta	common hummock sedge	OBL	7
<input checked="" type="checkbox"/>	Carex trichocarpa	hairy-fruited lake sedge	OBL	7
<input type="checkbox"/>	Carex vulpinoidea var. vulpinoidea	brown fox sedge	OBL	2
<input type="checkbox"/>	Cicuta maculata	water hemlock	OBL	6
<input type="checkbox"/>	Cicuta maculata	water hemlock	OBL	6
<input type="checkbox"/>	Cirsium muticum	swamp thistle	OBL	8
<input type="checkbox"/>	Eleocharis erythropoda	bald spikerush	OBL	3
<input type="checkbox"/>	Epilobium coloratum	cinnamon willow-herb	OBL	3
<input type="checkbox"/>	Eriophorum viridicarinatum	tall cottongrass	OBL	10
<input type="checkbox"/>	Eupatorium maculatum var. maculatum	spotted Joe Pye weed	OBL	4
<input type="checkbox"/>	Glyceria striata	fowl manna grass	OBL	4
<input type="checkbox"/>	Iris virginica var. shrevei	southern blue flag	OBL	5
<input type="checkbox"/>	Leersia oryzoides	rice cutgrass	OBL	3
<input type="checkbox"/>	Lythrum salicaria	purple loosestrife	OBL	
<input type="checkbox"/>	Polygonum amphibium var. emersum	terrestrial water knotweed	OBL	4
<input type="checkbox"/>	Potamogeton crispus	curly-leaf pondweed	OBL	
<input type="checkbox"/>	Rumex orbiculatus var. borealis	great water dock	OBL	8
<input type="checkbox"/>	Scirpus atrovirens	green bulrush	OBL	3
<input type="checkbox"/>	Scirpus pendulus	red bulrush	OBL	4
<input type="checkbox"/>	Scutellaria lateriflora var. lateriflora	mad-dog skullcap	OBL	5
<input type="checkbox"/>	Sium suave	tall water parsnip	OBL	5
<input type="checkbox"/>	Solidago riddellii	Riddell's goldenrod	OBL	7
<input type="checkbox"/>	Stachys palustris var. palustris	woundwort	OBL	5
<input checked="" type="checkbox"/>	Symplocarpus foetidus	skunk cabbage	OBL	8
<input checked="" type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input checked="" type="checkbox"/>	Typha latifolia	broad-leaf cattail	OBL	1



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/12/2010

Plant Community Area: W-18

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Sedge and Wet Meadows/Shrub Carr/Hardwood Swamp/Sh Marsh

<input checked="" type="checkbox"/>	Typha x glauca	blue cattail	OBL	
<input type="checkbox"/>	Aster firmus	swamp aster	FACW plus	6
<input type="checkbox"/>	Carex granularis var. haleana	Hale's granular sedge	FACW plus	3
<input type="checkbox"/>	Eupatorium perfoliatum var. perfoliatum	common boneset	FACW plus	6
<input type="checkbox"/>	Lobelia siphilitica	great blue lobelia	FACW plus	5
<input type="checkbox"/>	Lycopus americanus	American bugleweed	FACW plus	4
<input type="checkbox"/>	Panicum flexile	wiry panic grass	FACW plus	9
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Pycnanthemum virginianum	common mountain mint	FACW plus	6
<input type="checkbox"/>	Salix bebbiana	Bebb's willow	FACW plus	7
<input type="checkbox"/>	Spartina pectinata	prairie cordgrass	FACW plus	5
<input type="checkbox"/>	Verbena hastata var. hastata	blue vervain	FACW plus	3
<input type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input type="checkbox"/>	Anemone canadensis	Canada anemone	FACW	4
<input type="checkbox"/>	Aster lanceolatus var. simplex	panicked aster	FACW	4
<input type="checkbox"/>	Bromus ciliatus	fringed brome	FACW	7
<input type="checkbox"/>	Cinna arundinacea var. arundinacea	common wood reed	FACW	5
<input checked="" type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Impatiens capensis	orange jewelweed	FACW	2
<input type="checkbox"/>	Mentha arvensis var. canadensis	wild mint	FACW	3
<input type="checkbox"/>	Onoclea sensibilis	sensitive fern	FACW	5
<input type="checkbox"/>	Pilea pumila	Canada clearweed	FACW	3
<input type="checkbox"/>	Ribes americanum	wild black currant	FACW	4
<input type="checkbox"/>	Salix amygdaloides	peach-leaved willow	FACW	4
<input checked="" type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input type="checkbox"/>	Solidago gigantea	giant goldenrod	FACW	3
<input type="checkbox"/>	Thuja occidentalis	northern white cedar	FACW	9
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Euthamia graminifolia var. graminifolia	hairy grass-leaved goldenrod	FACW minus	4
<input type="checkbox"/>	Helianthus grosseserratus	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	Hydrophyllum virginianum	Virginia waterleaf	FACW minus	4
<input type="checkbox"/>	Physocarpus opulifolius var. opulifolius	eastern ninebark	FACW minus	6
<input type="checkbox"/>	Ranunculus acris var. acris	common buttercup	FACW minus	



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/12/2010

Plant Community Area: W-18

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Sedge and Wet Meadows/Shrub Carr/Hardwood Swamp/Sh Marsh

<input type="checkbox"/>	<i>Sambucus canadensis</i>	common elderberry	FACW minus	3
<input type="checkbox"/>	<i>Ulmus americana</i>	American elm	FACW minus	3
<input type="checkbox"/>	<i>Vitis riparia</i>	riverbank grape	FACW minus	2
<input type="checkbox"/>	<i>Rhamnus frangula</i>	glossy buckthorn	FAC plus	
<input type="checkbox"/>	<i>Viburnum lentago</i>	nannyberry	FAC plus	4
<input type="checkbox"/>	<i>Alliaria petiolata</i>	garlic mustard	FAC	
<input type="checkbox"/>	<i>Apocynum cannabinum</i> var. <i>cannabinum</i>	Indian hemp	FAC	3
<input type="checkbox"/>	<i>Barbarea vulgaris</i> var. <i>vulgaris</i>	common winter cress	FAC	
<input type="checkbox"/>	<i>Crataegus crus-galli</i>	cockspur hawthorne	FAC	3
<input type="checkbox"/>	<i>Cryptotaenia canadensis</i>	Canada honewort	FAC	4
<input type="checkbox"/>	<i>Equisetum arvense</i>	field horsetail	FAC	1
<input type="checkbox"/>	<i>Galium boreale</i>	northern bedstraw	FAC	5
<input type="checkbox"/>	<i>Geum canadense</i> var. <i>canadense</i>	white avens	FAC	2
<input type="checkbox"/>	<i>Helianthus tuberosus</i>	Jerusalem artichoke	FAC	2
<input type="checkbox"/>	<i>Juncus tenuis</i>	path rush	FAC	1
<input type="checkbox"/>	<i>Lobelia spicata</i> var. <i>spicata</i>	pale spiked lobelia	FAC	6
<input checked="" type="checkbox"/>	<i>Populus tremuloides</i>	quaking aspen	FAC	2
<input type="checkbox"/>	<i>Prunella vulgaris</i> var. <i>vulgaris</i>	ovate-leaved heal-all	FAC	1
<input type="checkbox"/>	<i>Solanum dulcamara</i> var. <i>dulcamara</i>	bittersweet nightshade	FAC	
<input type="checkbox"/>	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	wild strawberry	FAC minus	1
<input type="checkbox"/>	<i>Prunus virginiana</i> var. <i>virginiana</i>	choke cherry	FAC minus	3
<input type="checkbox"/>	<i>Quercus macrocarpa</i>	bur oak	FAC minus	5
<input type="checkbox"/>	<i>Smilacina stellata</i>	starry false Solomon's seal	FAC minus	5
<input type="checkbox"/>	<i>Rhamnus cathartica</i>	common buckthorn	FACU plus	
<input type="checkbox"/>	<i>Zanthoxylum americanum</i>	northern prickly ash	FACU plus	3
<input type="checkbox"/>	<i>Juglans nigra</i>	black walnut	FACU	3
<input type="checkbox"/>	<i>Podophyllum peltatum</i>	May apple	FACU	4
<input type="checkbox"/>	<i>Rosa blanda</i> var. <i>hispida</i>	early wild rose	FACU	4
<input type="checkbox"/>	<i>Silphium terebinthinaceum</i>	prairie dock	FACU	7
<input type="checkbox"/>	<i>Solidago canadensis</i> var. <i>scabra</i>	tall goldenrod	FACU	1
<input type="checkbox"/>	<i>Hesperis matronalis</i>	dame's rocket	UPL	
<input type="checkbox"/>	<i>Pastinaca sativa</i> var. <i>sativa</i>	wild parsnip	UPL	
<input type="checkbox"/>	<i>Ribes cynosbati</i>	prickly wild gooseberry	UPL	3
<input type="checkbox"/>	<i>Agrostis gigantea</i>	redtop grass	NI	



FLORISTIC QUALITY ASSESSMENT
Waukesha Bypass - STH 59 to IH-94
2010-0001.00
4/12/2010

Plant Community Area: W-18

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Sedge and Wet Meadows/Shrub Carr/Hardwood Swamp/Sh Marsh

<input type="checkbox"/>	Dipsacus sylvestris	common teasel	NI
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI
<input type="checkbox"/>	Carex spp.	sedges	CBD
<input type="checkbox"/>	Galium sp.	bedstraw	CBD
<input type="checkbox"/>	Salix sp.	willow	CBD

$$FQI = \bar{C} \sqrt{N}$$

Where: \bar{C} = Mean C Value
 N = Number of native taxa

TOTAL =	366
\bar{C} =	87
\bar{C} =	4.2
FQI =	39.2



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/5/2010

Plant Community Area: W-19

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shrub Carr / Hardwood Swamp (seep)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Symplocarpus foetidus	skunk cabbage	OBL	8
<input type="checkbox"/>	Cornus amomum ssp. obliqua	silky dogwood	FACW plus	4
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Fraxinus pennsylvanica	green ash	FACW	2
<input type="checkbox"/>	Impatiens capensis	orange jewelweed	FACW	2
<input type="checkbox"/>	Ribes americanum	wild black currant	FACW	4
<input checked="" type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input checked="" type="checkbox"/>	Equisetum hyemale var. affine	rough horsetail	FACW minus	3
<input type="checkbox"/>	Euthamia graminifolia var. graminifolia	hairy grass-leaved goldenrod	FACW minus	4
<input type="checkbox"/>	Hydrophyllum virginianum	Virginia waterleaf	FACW minus	4
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input checked="" type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Barbarea vulgaris var. vulgaris	common winter cress	FAC	
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input checked="" type="checkbox"/>	Juncus tenuis	path rush	FAC	1
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Rubus idaeus ssp. idaeus	Eurasian red raspberry	FACU plus	3
<input type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input type="checkbox"/>	Melilotus sp.	sweetclover	FACU	
<input type="checkbox"/>	Monarda fistulosa var. fistulosa	wild bergamot	FACU	3
<input type="checkbox"/>	Populus grandidentata	large-toothed aspen	FACU	3
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Pastinaca sativa var. sativa	wild parsnip	UPL	
<input type="checkbox"/>	Agrostis gigantea	redtop grass	NI	
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/5/2010

Plant Community Area: W-19

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shrub Carr / Hardwood Swamp (seep)

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index

\bar{C} = Mean C Value

N = Number of native taxa

TOTAL = 60

N = 20

\bar{C} = 3.0

FQI = 13.4



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/15/2010

Plant Community Area: W-20

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Sedge Meadow / Shrub Carr (seep)

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input type="checkbox"/>	Angelica atropurpurea	great angelica	OBL	6
<input type="checkbox"/>	Carex stricta var. stricta	common hummock sedge	OBL	7
<input type="checkbox"/>	Eupatorium maculatum var. maculatum	spotted Joe Pye weed	OBL	4
<input type="checkbox"/>	Iris virginica var. shrevei	southern blue flag	OBL	5
<input type="checkbox"/>	Rumex orbiculatus var. borealis	great water dock	OBL	8
<input checked="" type="checkbox"/>	Salix interior	sandbar willow	OBL	2
<input type="checkbox"/>	Scirpus atrovirens	green bulrush	OBL	3
<input type="checkbox"/>	Cornus amomum ssp. obliqua	silky dogwood	FACW plus	4
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Pycnanthemum virginianum	common mountain mint	FACW plus	6
<input checked="" type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input type="checkbox"/>	Solidago gigantea	giant goldenrod	FACW	3
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Thalictrum dasycarpum	tall meadow rue	FACW minus	4
<input checked="" type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Viburnum lentago	nannyberry	FAC plus	4
<input type="checkbox"/>	Barbarea vulgaris var. vulgaris	common winter cress	FAC	
<input type="checkbox"/>	Salix x rubens	hybrid crack willow	FAC	
<input type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input type="checkbox"/>	Zanthoxylum americanum	northern prickly ash	FACU plus	3
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index

\bar{C} = Mean C Value

N = Number of native taxa

TOTAL = 73

N = 19

\bar{C} = 3.8

FQI = 16.7



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/15/2010

Plant Community Area: W-21

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Shallow Marsh / Shrub Carr

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Angelica atropurpurea	great angelica	OBL	6
<input checked="" type="checkbox"/>	Salix interior	sandbar willow	OBL	2
<input checked="" type="checkbox"/>	Typha angustifolia	narrow-leaf cattail	OBL	
<input checked="" type="checkbox"/>	Typha latifolia	broad-leaf cattail	OBL	1
<input checked="" type="checkbox"/>	Typha x glauca	blue cattail	OBL	
<input type="checkbox"/>	Aster firmus	swamp aster	FACW plus	6
<input checked="" type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input checked="" type="checkbox"/>	Salix discolor	pussy willow	FACW	2
<input type="checkbox"/>	Solidago gigantea	giant goldenrod	FACW	3
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Euthamia graminifolia var. graminifolia	hairy grass-leaved goldenrod	FACW minus	4
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Cirsium arvense var. arvense	Canada thistle	FACU	
<input type="checkbox"/>	Agrostis gigantea	redtop grass	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: \bar{C} = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	33
N =	12
\bar{C} =	2.8
FQI =	9.5



FLORISTIC QUALITY ASSESSMENT
Waukesha Bypass - STH 59 to IH-94
2010-0001.00
3/30/2010

Plant Community Area: U-1

Observer(s): Tina Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =

N = 0

\bar{C} =

FQI =



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/10/2010

Plant Community Area: U-2

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - (Old-Field)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Carex granularis var. haleana	Hale's granular sedge	FACW plus	3
<input type="checkbox"/>	Fraxinus pennsylvanica	green ash	FACW	2
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Rubus idaeus ssp. strigosus	wild red raspberry	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Rumex crispus	curled dock	FAC plus	
<input type="checkbox"/>	Barbarea vulgaris var. vulgaris	common winter cress	FAC	
<input type="checkbox"/>	Gleditsia triacanthos	honey locust	FAC	7
<input type="checkbox"/>	Gleditsia triacanthos	honey locust	FAC	7
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Prunus virginiana var. virginiana	choke cherry	FAC minus	3
<input type="checkbox"/>	Aster pilosus var. pilosus	hairy aster	FACU plus	1
<input type="checkbox"/>	Trifolium pratense	red clover	FACU plus	
<input type="checkbox"/>	Trifolium repens	white clover	FACU plus	
<input type="checkbox"/>	Ambrosia artemisiifolia var. elatior	common ragweed	FACU	0
<input type="checkbox"/>	Elytrigia repens	quackgrass	FACU	
<input type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input type="checkbox"/>	Melilotus sp.	sweetclover	FACU	
<input type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Cirsium vulgare	bull thistle	FACU minus	
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Bromus inermis ssp. inermis	smooth brome	UPL	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Verbascum thapsus	common mullein	UPL	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	35
N =	13
\bar{C} =	2.7
FQI =	9.7



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: U-3

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland (Mesic Forest / Planted Evergreens)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Fraxinus pennsylvanica	green ash	FACW	2
<input checked="" type="checkbox"/>	Thuja occidentalis	northern white cedar	FACW	9
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Aster lateriflorus var. lateriflorus	common calico aster	FACW minus	3
<input type="checkbox"/>	Dryopteris carthusiana	spinulose woodfern	FACW minus	7
<input type="checkbox"/>	Elymus virginicus var. virginicus	Virginia wild rye	FACW minus	6
<input checked="" type="checkbox"/>	Rubus idaeus ssp. strigosus	wild red raspberry	FACW minus	3
<input type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Carex grisea	inflated gray sedge	FAC plus	4
<input checked="" type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input checked="" type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input type="checkbox"/>	Celtis occidentalis var. occidentalis	common hackberry	FAC minus	4
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Monarda fistulosa var. fistulosa	wild bergamot	FACU	3
<input checked="" type="checkbox"/>	Pinus resinosa	red pine	FACU	7
<input type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Rosa multiflora	multiflora rose	FACU	
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Ribes cynosbati	prickly wild gooseberry	UPL	3
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL = 61
N = 16
 \bar{C} = 3.8
FQI = 15.3



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: U-4

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - (Scrub/Shrub / Old-Field)

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Ribes americanum	wild black currant	FACW	4
<input checked="" type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Helianthus grosseserratus	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	Rubus idaeus ssp. strigosus	wild red raspberry	FACW minus	3
<input type="checkbox"/>	Ambrosia trifida var. trifida	giant ragweed	FAC plus	0
<input type="checkbox"/>	Rumex crispus	curled dock	FAC plus	
<input type="checkbox"/>	Toxicodendron radicans ssp. negundo	common poison ivy	FAC plus	4
<input type="checkbox"/>	Barbarea vulgaris var. vulgaris	common winter cress	FAC	
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input checked="" type="checkbox"/>	Acer saccharum var. saccharum	sugar maple	FACU	5
<input type="checkbox"/>	Elytrigia repens	quackgrass	FACU	
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input checked="" type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Hesperis matronalis	dame's rocket	UPL	
<input checked="" type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	22
N =	9
C =	2.4
FQI =	7.3



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: U-5

Observer(s): Julie A. Paschal

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - (Old-Field)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Rubus idaeus ssp. strigosus	wild red raspberry	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input checked="" type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Amaranthus retroflexus	red-root amaranth	FACU	0
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	

$$FQI = \bar{C} \sqrt{N}$$

Where: **FQI** = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL	=	5
N	=	4
\bar{C}	=	1.3
FQI	=	2.5



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/15/2010

Plant Community Area: U-5A

Observer(s): Tina Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	

$$FQI = \bar{C} \sqrt{N}$$

Where: \bar{C} = Mean C Value
 N = Number of native taxa

TOTAL =

\bar{C} = 0

N =

FQI =



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: U-6

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - Mesic Forest / Mowed Lawn)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input checked="" type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input checked="" type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input checked="" type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	

$$FQI = \bar{C} \sqrt{N}$$

Where: **FQI** = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	4
N =	3
\bar{C} =	1.3
FQI =	2.3



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: U-7

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland (Old-Field)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Rumex crispus	curled dock	FAC plus	
<input type="checkbox"/>	Barbarea vulgaris var. vulgaris	common winter cress	FAC	
<input type="checkbox"/>	Conyza canadensis var. canadensis	Canada horseweed	FAC minus	0
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Cirsium arvense var. arvense	Canada thistle	FACU	
<input type="checkbox"/>	Oenothera biennis	common evening primrose	FACU	1
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Asclepias syriaca	common milkweed	UPL	1
<input type="checkbox"/>	Cichorium intybus	chichory	UPL	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Verbascum thapsus	common mullein	UPL	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	2
N =	3
C =	0.7
FQI =	1.2



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: U-8

Observer(s): Julie A. Paschal

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Toxicodendron radicans ssp. negundo	common poison ivy	FAC plus	4
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input checked="" type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
 N = Number of native taxa

TOTAL =	5
$N =$	2
$\bar{C} =$	2.5
$FQI =$	3.5



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: Upland Woods Across from W-8 **Observer(s):** Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed *Mesic Woodland Across from W-8*

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input checked="" type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Toxicodendron radicans ssp. negundo	common poison ivy	FAC plus	4
<input type="checkbox"/>	Viburnum lentago	nannyberry	FAC plus	4
<input checked="" type="checkbox"/>	Populus tremuloides	quaking aspen	FAC	2
<input type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input checked="" type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input checked="" type="checkbox"/>	Zanthoxylum americanum	northern prickly ash	FACU plus	3
<input checked="" type="checkbox"/>	Carya ovata var. ovata	shagbark hickory	FACU	5
<input type="checkbox"/>	Juniperus virginiana	eastern red cedar	FACU	3
<input type="checkbox"/>	Oenothera biennis	common evening primrose	FACU	1
<input type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Quercus rubra var. rubra	red oak	FACU	5
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Ribes cynosbati	prickly wild gooseberry	UPL	3
<input checked="" type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: **FQI** = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	43
N =	14
C =	3.1
FQI =	11.5



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: U-9

Observer(s): Julie A. Paschal

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input checked="" type="checkbox"/>	Setaria glauca	yellow foxtail	FAC	
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input type="checkbox"/>	Ambrosia artemisiifolia var. elatior	common ragweed	FACU	0
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Verbascum blattaria	moth mullein	FACU minus	
<input checked="" type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	

$$FQI = \bar{C} \sqrt{N}$$

Where: **FQI** = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	6
N =	3
\bar{C} =	2.0
FQI =	3.5



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

3/31/2010

Plant Community Area: U-10

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland (Old-Field / Scrub Shrub)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Populus tremuloides	quaking aspen	FAC	2
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Carya ovata var. ovata	shagbark hickory	FACU	5
<input type="checkbox"/>	Dactylis glomerata	orchard grass	FACU	
<input type="checkbox"/>	Elytrigia repens	quackgrass	FACU	
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Cirsium vulgare	bull thistle	FACU minus	
<input type="checkbox"/>	Asclepias syriaca	common milkweed	UPL	1
<input type="checkbox"/>	Bromus inermis ssp. inermis	smooth brome	UPL	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Verbascum thapsus	common mullein	UPL	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	19
N =	7
\bar{C} =	2.7
FQI =	7.2



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: U-11

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland (Agricultural Field)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Setaria faberi	giant foxtail	FACU plus	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Zea mays	cultivated corn	UPL	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =

N = 0

C =

FQI =



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: U-11A

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland (Old-field) / Planted Evergreens

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Betula nigra	river birch	FACW	6
<input checked="" type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Gleditsia triacanthos	honey locust	FAC	7
<input type="checkbox"/>	Gleditsia triacanthos	honey locust	FAC	7
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Glechoma hederacea var. hederacea	common ground ivy	FACU	
<input checked="" type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input checked="" type="checkbox"/>	Picea glauca	white spruce	FACU	7
<input checked="" type="checkbox"/>	Pinus strobus	eastern white pine	FACU	5
<input checked="" type="checkbox"/>	Pinus strobus	white pine	FACU	5
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Asclepias syriaca	common milkweed	UPL	1
<input type="checkbox"/>	Leonurus cardiaca ssp. cardiaca	common motherwort	UPL	
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	
<input type="checkbox"/>	Rubus sp.	wild blackberry	CBD	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	46
N =	12
C =	3.8
FQI =	13.3



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: U-12

Observer(s): Julie A. Paschal

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input type="checkbox"/>	Echinocystis lobata	wild cucumber	FACW	2
<input type="checkbox"/>	Thuja occidentalis	northern white cedar	FACW	9
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Barbarea vulgaris var. vulgaris	common winter cress	FAC	
<input type="checkbox"/>	Populus tremuloides	quaking aspen	FAC	2
<input type="checkbox"/>	Fragaria virginiana ssp. virginiana	wild strawberry	FAC minus	1
<input type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Rubus idaeus ssp. idaeus	Eurasian red raspberry	FACU plus	3
<input type="checkbox"/>	Galium aparine	cleavers	FACU	2
<input type="checkbox"/>	Pinus strobus	white pine	FACU	5
<input type="checkbox"/>	Pinus strobus	eastern white pine	FACU	5
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Dipsacus laciniatus	cut-leaved teasel	UPL	
<input checked="" type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	38
N =	11
\bar{C} =	3.5
FQI =	11.5



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/1/2010

Plant Community Area: U-13

Observer(s): Julie A. Paschal

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Barbarea vulgaris var. vulgaris	common winter cress	FAC	
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input type="checkbox"/>	Populus tremuloides	quaking aspen	FAC	2
<input type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Rubus idaeus ssp. idaeus	Eurasian red raspberry	FACU plus	3
<input type="checkbox"/>	Monarda fistulosa var. fistulosa	wild bergamot	FACU	3
<input type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Corylus americana	American hazelnut	FACU minus	5
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Dipsacus laciniatus	cut-leaved teasel	UPL	
<input type="checkbox"/>	Pastinaca sativa var. sativa	wild parsnip	UPL	
<input checked="" type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	27
N =	9
C =	3.0
FQI =	9.0



FLORISTIC QUALITY ASSESSMENT
Waukesha Bypass - STH 59 to IH-94
2010-0001.00
4/1/2010

Plant Community Area: U-15

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland (Old-field)

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Hydrophyllum virginianum	Virginia waterleaf	FACW minus	4
<input type="checkbox"/>	Rubus idaeus ssp. strigosus	wild red raspberry	FACW minus	3
<input type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Viburnum lentago	nannyberry	FAC plus	4
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Celtis occidentalis var. occidentalis	common hackberry	FAC minus	4
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input type="checkbox"/>	Dactylis glomerata	orchard grass	FACU	
<input checked="" type="checkbox"/>	Quercus rubra var. borealis	northern red oak	FACU	
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input checked="" type="checkbox"/>	Bromus inermis ssp. inermis	smooth brome	UPL	
<input type="checkbox"/>	Leonurus cardiaca ssp. cardiaca	common motherwort	UPL	
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	22
N =	7
\bar{C} =	3.1
FQI =	8.3



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/2/2010

Plant Community Area: U-17 (east end)

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland (Old-Field / Scrub Shrub)

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input type="checkbox"/>	<i>Solidago riddellii</i>	Riddell's goldenrod	OBL	7
<input type="checkbox"/>	<i>Carex granularis</i> var. <i>haleana</i>	Hale's granular sedge	FACW plus	3
<input type="checkbox"/>	<i>Cornus amomum</i> ssp. <i>obliqua</i>	silky dogwood	FACW plus	4
<input checked="" type="checkbox"/>	<i>Cornus sericea</i> ssp. <i>sericea</i>	red-osier dogwood	FACW	3
<input type="checkbox"/>	<i>Acer negundo</i> var. <i>negundo</i>	common box elder	FACW minus	0
<input type="checkbox"/>	<i>Cornus foemina</i> ssp. <i>racemosa</i>	gray dogwood	FACW minus	2
<input type="checkbox"/>	<i>Euthamia graminifolia</i> var. <i>graminifolia</i>	hairy grass-leaved goldenrod	FACW minus	4
<input type="checkbox"/>	<i>Populus deltoides</i> ssp. <i>deltoides</i>	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	<i>Populus tremuloides</i>	quaking aspen	FAC	2
<input type="checkbox"/>	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	wild strawberry	FAC minus	1
<input checked="" type="checkbox"/>	<i>Poa pratensis</i>	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	<i>Aster pilosus</i> var. <i>pilosus</i>	hairy aster	FACU plus	1
<input checked="" type="checkbox"/>	<i>Rhamnus cathartica</i>	common buckthorn	FACU plus	
<input type="checkbox"/>	<i>Juniperus virginiana</i>	eastern red cedar	FACU	3
<input type="checkbox"/>	<i>Monarda fistulosa</i> var. <i>fistulosa</i>	wild bergamot	FACU	3
<input type="checkbox"/>	<i>Oenothera biennis</i>	common evening primrose	FACU	1
<input type="checkbox"/>	<i>Solidago canadensis</i> var. <i>scabra</i>	tall goldenrod	FACU	1
<input type="checkbox"/>	<i>Solidago rigida</i> ssp. <i>humilis</i>	lesser stiff goldenrod	FACU minus	5
<input type="checkbox"/>	<i>Daucus carota</i>	Queen Anne's lace	UPL	
<input type="checkbox"/>	<i>Pastinaca sativa</i> var. <i>sativa</i>	wild parsnip	UPL	
<input type="checkbox"/>	<i>Ratibida pinnata</i>	yellow coneflower	UPL	4
<input type="checkbox"/>	<i>Verbascum thapsus</i>	common mullein	UPL	
<input type="checkbox"/>	<i>Agrostis gigantea</i>	redtop grass	NI	
<input checked="" type="checkbox"/>	<i>Lonicera x bella</i>	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	46
N =	17
\bar{C} =	2.7
FQI =	11.2

U-17 (east end)



FLORISTIC QUALITY ASSESSMENT
Waukesha Bypass - STH 59 to IH-94
2010-0001.00
4/2/2010

Plant Community Area: U-17 (west end)

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland (Mesic Woodland / Old-Field)

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input type="checkbox"/>	Carex pellita	broad-leaved woolly sedge	OBL	4
<input type="checkbox"/>	Carex granularis var. haleana	Hale's granular sedge	FACW plus	3
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Carex grisea	inflated gray sedge	FAC plus	4
<input type="checkbox"/>	Rumex crispus	curled dock	FAC plus	
<input type="checkbox"/>	Viburnum lentago	nannyberry	FAC plus	4
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Barbarea vulgaris var. vulgaris	common winter cress	FAC	
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input checked="" type="checkbox"/>	Populus tremuloides	quaking aspen	FAC	2
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Sonchus arvensis ssp. arvensis	field sow thistle	FAC minus	
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input checked="" type="checkbox"/>	Rubus idaeus ssp. idaeus	Eurasian red raspberry	FACU plus	3
<input type="checkbox"/>	Thalictrum dioicum	early meadowrue	FACU plus	7
<input checked="" type="checkbox"/>	Zanthoxylum americanum	northern prickly ash	FACU plus	3
<input type="checkbox"/>	Allium canadense var. canadense	wild garlic	FACU	4
<input type="checkbox"/>	Ambrosia artemisiifolia var. elatior	common ragweed	FACU	0
<input checked="" type="checkbox"/>	Cirsium arvense var. arvense	Canada thistle	FACU	
<input type="checkbox"/>	Elytrigia repens	quackgrass	FACU	
<input checked="" type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input type="checkbox"/>	Monarda fistulosa var. fistulosa	wild bergamot	FACU	3
<input type="checkbox"/>	Quercus rubra var. rubra	red oak	FACU	5
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Corylus americana	American hazelnut	FACU minus	5
<input type="checkbox"/>	Scrophularia marilandica	late figwort	FACU minus	4
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Asclepias syriaca	common milkweed	UPL	1
<input type="checkbox"/>	Bromus inermis ssp. inermis	smooth brome	UPL	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	

U-17 (west end)



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/2/2010

Plant Community Area: U-17 (west end)

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland (Mesic Woodland / Old-Field)

<input type="checkbox"/>	Hesperis matronalis	dame's rocket	UPL	
<input type="checkbox"/>	Linaria vulgaris	butter-and-eggs	UPL	
<input checked="" type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	
<input type="checkbox"/>	Solidago canadensis var. gilvocanescens	Canada goldenrod	CBD	1

$$FQI = \bar{C} \sqrt{N}$$

Where: **FQI** = Floristic Quality Index

\bar{C} = Mean C Value

N = Number of native taxa

TOTAL = 61

N = 21

\bar{C} = 2.9

FQI = 13.3

U-17 (west end)



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/5/2010

Plant Community Area: U-18 (Mesic Forest - NW)

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - (Mesic Forest)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Fraxinus pennsylvanica	green ash	FACW	2
<input type="checkbox"/>	Arisaema triphyllum ssp. triphyllum	jack-in-the-pulpit	FACW minus	7
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Carex grisea	inflated gray sedge	FAC plus	4
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input type="checkbox"/>	Polygonum virginianum	jumpseed	FAC	7
<input type="checkbox"/>	Populus tremuloides	quaking aspen	FAC	2
<input type="checkbox"/>	Hackelia virginiana	Virginia stickseed	FAC minus	3
<input type="checkbox"/>	Parthenocissus quinquefolia var. quinquefolia	virginia creeper	FAC minus	5
<input type="checkbox"/>	Prunus virginiana var. virginiana	choke cherry	FAC minus	3
<input type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Rubus idaeus ssp. idaeus	Eurasian red raspberry	FACU plus	3
<input checked="" type="checkbox"/>	Zanthoxylum americanum	northern prickly ash	FACU plus	3
<input type="checkbox"/>	Agrimonia gryposepala	tall hairy groovebur	FACU	2
<input type="checkbox"/>	Allium canadense var. canadense	wild garlic	FACU	4
<input type="checkbox"/>	Carya ovata var. ovata	shagbark hickory	FACU	5
<input type="checkbox"/>	Circaea lutetiana ssp. canadensis	common enchanter's nightshade	FACU	2
<input type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input type="checkbox"/>	Monarda fistulosa var. fistulosa	wild bergamot	FACU	3
<input type="checkbox"/>	Podophyllum peltatum	May apple	FACU	4
<input checked="" type="checkbox"/>	Populus grandidentata	large-toothed aspen	FACU	3
<input type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input checked="" type="checkbox"/>	Quercus alba	white oak	FACU	7
<input checked="" type="checkbox"/>	Quercus rubra var. rubra	red oak	FACU	5
<input type="checkbox"/>	Rosa multiflora	multiflora rose	FACU	
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Carex pensylvanica var. pensylvanica	common oak sedge	UPL	3
<input type="checkbox"/>	Hesperis matronalis	dame's rocket	UPL	
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

(Mesic Forest - NW)



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/5/2010

Plant Community Area: U-18 (Mesic Forest - NW)

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - (Mesic Forest)

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index

\bar{C} = Mean C Value

N = Number of native taxa

TOTAL = 92

N = 25

\bar{C} = 3.7

FQI = 18.4

(Mesic Forest - NW)



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/5/2010

Plant Community Area: U-18 (NE end)

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - (Scrub / Shrub)

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input type="checkbox"/>	Carex granularis var. haleana	Hale's granular sedge	FACW plus	3
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input checked="" type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Euthamia graminifolia var. graminifolia	hairy grass-leaved goldenrod	FACW minus	4
<input type="checkbox"/>	Helianthus grosseserratus	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	Geum aleppicum	yellow avens	FAC plus	3
<input type="checkbox"/>	Viburnum lentago	nannyberry	FAC plus	4
<input type="checkbox"/>	Fragaria virginiana ssp. virginiana	wild strawberry	FAC minus	1
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Rubus idaeus ssp. idaeus	Eurasian red raspberry	FACU plus	3
<input type="checkbox"/>	Zanthoxylum americanum	northern prickly ash	FACU plus	3
<input type="checkbox"/>	Asparagus officinalis	asparagus	FACU	
<input type="checkbox"/>	Juniperus virginiana	eastern red cedar	FACU	3
<input type="checkbox"/>	Monarda fistulosa var. fistulosa	wild bergamot	FACU	3
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Leucanthemum vulgare	ox-eye daisy	UPL	
<input type="checkbox"/>	Penstemon grandiflorus	large-flowered beardtongue	UPL	4
<input checked="" type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	39
N =	14
\bar{C} =	2.8
FQI =	10.4

U-18 (NE end)



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/29/2010

Plant Community Area: U-18 (south side mesic forest)

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - Mesic Forest

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Thuja occidentalis	northern white cedar	FACW	9
<input checked="" type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input checked="" type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Populus tremuloides	quaking aspen	FAC	2
<input type="checkbox"/>	Fragaria virginiana ssp. virginiana	wild strawberry	FAC minus	1
<input type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input checked="" type="checkbox"/>	Zanthoxylum americanum	northern prickly ash	FACU plus	3
<input type="checkbox"/>	Achillea millefolium var. lanulosa	common yarrow	FACU	1
<input type="checkbox"/>	Carya ovata var. ovata	shagbark hickory	FACU	5
<input type="checkbox"/>	Pinus resinosa	red pine	FACU	7
<input checked="" type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Quercus rubra var. rubra	red oak	FACU	5
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Picea abies	Norway spruce	UPL	
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: **FQI** = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	41
N =	13
\bar{C} =	3.2
FQI =	11.4

h side mesic forest)



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/5/2010

Plant Community Area: U-19 (old-field/scrubshrub NW)

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - (Old-Field / Scrub Shrub)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Carex stricta var. stricta	common hummock sedge	OBL	7
<input type="checkbox"/>	Carex granularis var. haleana	Hale's granular sedge	FACW plus	3
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Erigeron philadelphicus	common fleabane	FACW	2
<input checked="" type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Euthamia graminifolia var. graminifolia	hairy grass-leaved goldenrod	FACW minus	4
<input type="checkbox"/>	Helianthus grosseserratus	sawtooth sunflower	FACW minus	2
<input type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Geum aleppicum	yellow avens	FAC plus	3
<input type="checkbox"/>	Rhamnus frangula	glossy buckthorn	FAC plus	
<input type="checkbox"/>	Viburnum lentago	nannyberry	FAC plus	4
<input type="checkbox"/>	Apocynum cannabinum var. cannabinum	Indian hemp	FAC	3
<input type="checkbox"/>	Crataegus crus-galli	cockspur hawthorne	FAC	3
<input type="checkbox"/>	Juncus tenuis	path rush	FAC	1
<input checked="" type="checkbox"/>	Populus tremuloides	quaking aspen	FAC	2
<input type="checkbox"/>	Prunella vulgaris var. vulgaris	ovate-leaved heal-all	FAC	1
<input type="checkbox"/>	Fragaria virginiana ssp. virginiana	wild strawberry	FAC minus	1
<input type="checkbox"/>	Medicago lupulina var. lupulina	black medick	FAC minus	
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Rudbeckia triloba var. triloba	brown-eyed Susan	FAC minus	4
<input type="checkbox"/>	Trifolium hybridum	alsike clover	FAC minus	
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input checked="" type="checkbox"/>	Zanthoxylum americanum	northern prickly ash	FACU plus	3
<input type="checkbox"/>	Achillea millefolium var. lanulosa	common yarrow	FACU	1
<input type="checkbox"/>	Carya ovata var. ovata	shagbark hickory	FACU	5
<input type="checkbox"/>	Dactylis glomerata	orchard grass	FACU	
<input type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input type="checkbox"/>	Juniperus virginiana	eastern red cedar	FACU	3
<input type="checkbox"/>	Melilotus sp.	sweetclover	FACU	
<input type="checkbox"/>	Monarda fistulosa var. fistulosa	wild bergamot	FACU	3

old/scrubshrub NW)



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/5/2010

Plant Community Area: U-19 (old-field/scrubshrub NW)

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - (Old-Field / Scrub Shrub)

<input type="checkbox"/>	Oenothera biennis	common evening primrose	FACU	1
<input type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Quercus rubra var. borealis	northern red oak	FACU	
<input checked="" type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Solidago rigida ssp. humilis	lesser stiff goldenrod	FACU minus	5
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Hieracium caespitosum	yellow hawkweed	UPL	
<input type="checkbox"/>	Leucanthemum vulgare	ox-eye daisy	UPL	
<input type="checkbox"/>	Pastinaca sativa var. sativa	wild parsnip	UPL	
<input type="checkbox"/>	Rhus typhina	staghorn sumac	UPL	2
<input type="checkbox"/>	Verbascum thapsus	common mullein	UPL	
<input type="checkbox"/>	Dipsacus sylvestris	common teasel	NI	
<input type="checkbox"/>	Crataegus sp.	hawthorne	CBD	

$$FQI = \bar{C} \sqrt{N}$$

Where: \bar{C} = Mean C Value
 N = Number of native taxa

TOTAL =	82
N =	30
\bar{C} =	2.7
FQI =	15.0



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/15/2010

Plant Community Area: U-20

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - (Scrub / Shrub / Old-Field)

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Hydrophyllum virginianum	Virginia waterleaf	FACW minus	4
<input type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Viburnum lentago	nannyberry	FAC plus	4
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input checked="" type="checkbox"/>	Zanthoxylum americanum	northern prickly ash	FACU plus	3
<input type="checkbox"/>	Carya ovata var. ovata	shagbark hickory	FACU	5
<input type="checkbox"/>	Melilotus sp.	sweetclover	FACU	
<input checked="" type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Hypericum perforatum	common St. Johnswort	UPL	
<input checked="" type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	37
N =	12
\bar{C} =	3.1
FQI =	10.7



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass - STH 59 to IH-94

2010-0001.00

4/15/2010

Plant Community Area: U-21

Observer(s): Tina M. Myers

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed Upland - (Scrub / Shrub / Old-Field)

Dominant	Scientific Name	Common Name	Ind. Status	WI C Value
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Acer saccharinum	silver maple	FACW	2
<input checked="" type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input checked="" type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input checked="" type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Cirsium arvense var. arvense	Canada thistle	FACU	
<input type="checkbox"/>	Melilotus sp.	sweetclover	FACU	
<input type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Solidago canadensis var. scabra	tall goldenrod	FACU	1
<input type="checkbox"/>	Taraxacum officinale ssp. vulgare	common dandelion	FACU	
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Asclepias syriaca	common milkweed	UPL	1
<input type="checkbox"/>	Bromus inermis ssp. inermis	smooth brome	UPL	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Pastinaca sativa var. sativa	wild parsnip	UPL	
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	9
N =	6
\bar{C} =	1.5
FQI =	3.7



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass STH 59 to IH 94

2010-0001.00

3/30/2010

Plant Community Area: KisdonHill/Mature Mixed H **Observer(s):** Laura A.B. Giese

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Fraxinus pennsylvanica	green ash	FACW	2
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Cornus foemina ssp. racemosa	gray dogwood	FACW minus	2
<input type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Populus tremuloides	quaking aspen	FAC	2
<input type="checkbox"/>	Celtis occidentalis var. occidentalis	common hackberry	FAC minus	4
<input type="checkbox"/>	Quercus macrocarpa	bur oak	FAC minus	5
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Zanthoxylum americanum	northern prickly ash	FACU plus	3
<input type="checkbox"/>	Carya ovata var. ovata	shagbark hickory	FACU	5
<input type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input type="checkbox"/>	Juniperus virginiana	eastern red cedar	FACU	3
<input type="checkbox"/>	Oenothera biennis	common evening primrose	FACU	1
<input type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Quercus alba	white oak	FACU	7
<input type="checkbox"/>	Quercus rubra var. rubra	red oak	FACU	5
<input type="checkbox"/>	Cirsium vulgare	bull thistle	FACU minus	
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	
<input type="checkbox"/>	Rubus sp.	wild blackberry	CBD	
<input type="checkbox"/>	Solidago sp.	goldenrod	CBD	

$$FQI = \bar{C} \sqrt{N}$$

Where: **FQI** = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	48
N =	15
\bar{C} =	3.2
FQI =	12.4

KisdonHill/Mature Mixed Hdwd



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass STH 59 to IH 94

2010-0001.00

3/31/2010

Plant Community Area: Mature Oak Woodlands **Observer(s):** Laura A.B. Giese

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Fraxinus pennsylvanica	green ash	FACW	2
<input type="checkbox"/>	Populus deltoides ssp. deltoides	eastern cottonwood	FAC plus	2
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Rubus idaeus ssp. idaeus	Eurasian red raspberry	FACU plus	3
<input type="checkbox"/>	Zanthoxylum americanum	northern prickly ash	FACU plus	3
<input type="checkbox"/>	Carya ovata var. ovata	shagbark hickory	FACU	5
<input type="checkbox"/>	Claytonia virginica var. virginica	common spring beauty	FACU	6
<input type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Quercus alba	white oak	FACU	7
<input type="checkbox"/>	Quercus rubra var. rubra	red oak	FACU	5
<input type="checkbox"/>	Hesperis matronalis	dame's rocket	UPL	
<input type="checkbox"/>	Quercus velutina	black oak	UPL	5
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

Where: **FQI** = Floristic Quality Index

\bar{C} = Mean C Value

N = Number of native taxa

TOTAL = 43

N = 11

\bar{C} = 3.9

FQI = 13.0

Mature Oak Woodlands



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass STH 59 to IH 94

2010-0001.00

3/30/2010

Plant Community Area: Riparian Woodlands

Observer(s): Laura A.B. Giese

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Cornus sericea ssp. sericea	red-osier dogwood	FACW	3
<input type="checkbox"/>	Fraxinus pennsylvanica	green ash	FACW	2
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Sambucus canadensis	common elderberry	FACW minus	3
<input type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Prunella vulgaris var. vulgaris	ovate-leaved heal-all	FAC	1
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input type="checkbox"/>	Prunus serotina var. serotina	black cherry	FACU	3
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	
<input type="checkbox"/>	Carex sp.	sedge	CBD	
<input type="checkbox"/>	Rubus sp.	wild blackberry	CBD	

$$FQI = \bar{C} \sqrt{N}$$

Where: **FQI** = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	20
N =	9
\bar{C} =	2.2
FQI =	6.7

Riparian Woodlands



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass STH 59 to IH 94

2010-0001.00

3/30/2010

Plant Community Area: Uneven-aged Woodland **Observer(s):** Laura A.B. Giese

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Fraxinus pennsylvanica	green ash	FACW	2
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Vitis riparia	riverbank grape	FACW minus	2
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Geum canadense var. canadense	white avens	FAC	2
<input type="checkbox"/>	Gleditsia triacanthos	honey locust	FAC	7
<input type="checkbox"/>	Gleditsia triacanthos	honey locust	FAC	7
<input type="checkbox"/>	Rubus idaeus ssp. idaeus	Eurasian red raspberry	FACU plus	3
<input type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Leonurus cardiaca ssp. cardiaca	common motherwort	UPL	

$$FQI = \bar{C} \sqrt{N}$$

Where: **FQI** = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	29
N =	9
\bar{C} =	3.2
FQI =	9.7

Uneven-aged Woodland



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass STH 59 to IH 94

2010-0001.00

3/30/2010

Plant Community Area: Upland Field

Observer(s): Laura A.B. Giese

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Phalaris arundinacea	reed canary grass	FACW plus	
<input type="checkbox"/>	Acer negundo var. negundo	common box elder	FACW minus	0
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Rumex acetosella	sheep sorrel	FAC	
<input type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Rubus idaeus ssp. idaeus	Eurasian red raspberry	FACU plus	3
<input type="checkbox"/>	Achillea millefolium var. lanulosa	common yarrow	FACU	1
<input type="checkbox"/>	Cirsium arvense var. arvense	Canada thistle	FACU	
<input type="checkbox"/>	Fraxinus americana var. americana	white ash	FACU	5
<input type="checkbox"/>	Juniperus virginiana	eastern red cedar	FACU	3
<input type="checkbox"/>	Melilotus sp.	sweetclover	FACU	
<input type="checkbox"/>	Monarda fistulosa var. fistulosa	wild bergamot	FACU	3
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Asclepias syriaca	common milkweed	UPL	1
<input type="checkbox"/>	Asclepias tuberosa ssp. interior	butterfly weed	UPL	6
<input type="checkbox"/>	Cichorium intybus	chichory	UPL	
<input type="checkbox"/>	Daucus carota	Queen Anne's lace	UPL	
<input type="checkbox"/>	Verbascum thapsus	common mullein	UPL	
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	
<input type="checkbox"/>	Aster sp.	aster	CBD	
<input type="checkbox"/>	Hypericum sp.	St. Johnswort	CBD	

$$FQI = \bar{C} \sqrt{N}$$

Where: FQI = Floristic Quality Index
C = Mean C Value
N = Number of native taxa

TOTAL =	22
N =	8
C =	2.8
FQI =	7.8

Upland Field



FLORISTIC QUALITY ASSESSMENT

Waukesha Bypass STH 59 to IH 94

2010-0001.00

3/30/2010

Plant Community Area: Young Woodland

Observer(s): Laura A.B. Giese

Community Classification:

NWI / Cowardin

WI Wetland Inventory

Eggers and Reed

<u>Dominant</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Ind. Status</u>	<u>WI C Value</u>
<input type="checkbox"/>	Ulmus americana	American elm	FACW minus	3
<input type="checkbox"/>	Alliaria petiolata	garlic mustard	FAC	
<input type="checkbox"/>	Gleditsia triacanthos	honey locust	FAC	7
<input type="checkbox"/>	Gleditsia triacanthos	honey locust	FAC	7
<input type="checkbox"/>	Poa pratensis	Kentucky bluegrass	FAC minus	
<input type="checkbox"/>	Rhamnus cathartica	common buckthorn	FACU plus	
<input type="checkbox"/>	Rubus idaeus ssp. idaeus	Eurasian red raspberry	FACU plus	3
<input type="checkbox"/>	Juglans nigra	black walnut	FACU	3
<input type="checkbox"/>	Amelanchier laevis	smooth serviceberry	UPL	6
<input type="checkbox"/>	Arctium minus	common burdock	UPL	
<input type="checkbox"/>	Hemerocallis fulva	orange day lily	UPL	
<input type="checkbox"/>	Hesperis matronalis	dame's rocket	UPL	
<input type="checkbox"/>	Lonicera x bella	hybrid bush honeysuckle	NI	

$$FQI = \bar{C} \sqrt{N}$$

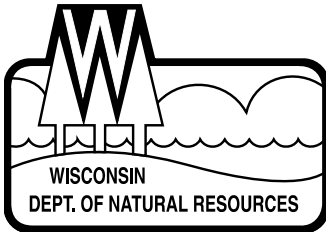
Where: **FQI** = Floristic Quality Index
 \bar{C} = Mean C Value
N = Number of native taxa

TOTAL =	29
N =	6
\bar{C} =	4.8
FQI =	11.8

Young Woodland

APPENDIX E

WDNR – NHI Database Review



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Gloria L. McCutcheon, Regional Director

Southeast Region Headquarters
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee, Wisconsin 53212-3128
FAX 414-263-8606
Telephone 414-263-8500
TTY Access via relay - 711

May 4, 2010

Ben Goldsworthy
CH2M HILL
135 South 84th Street, Suite 325
Milwaukee, WI 53214

Subject: West Waukesha Bypass Study - State listed special concern, threatened and endangered species
WisDOT# 2788-01-00
Waukesha County

Dear Mr. Goldsworthy:

The Department of Natural Resources has done a preliminary look up of the Natural Heritage Inventory (NHI). This correspondence is only a review of state listed species and should not be considered an initial review of the project or the study area. Our review of the NHI included the following sections, per your request:

T6N, R18E, Sections 1, 12, and 13
T6N, R19E, Sections 5, 6, 7, 8, 17, and 18
T7N, R18E, Sections 24, 25, 36
T7N, R19E, Sections 19, 20, 29, 30, 31, and 32

Our Natural Heritage Inventory (NHI) data files contain the following rare species occurring within or near the requested areas of study, some in multiple locations:

- *Thamnophis butleri* (Butler's Gartersnake) – Threatened snake
- *Triglochin maritima* (Common Bog Arrow) – Special concern plant
- Mesic Prairie – Natural area of special concern
- *Calylophus serrulatus* (Yellow Evening Primrose) – Special concern plant
- *Cypripedium parviflorum* var. *makasin* (Northern Yellow Lady's slipper) – Special concern plant
- *Emydoidea blandingii* (Blanding's Turtle) – Threatened turtle
- Southern Dry Forest – Natural Area of special concern
- *Erimyzon sucetta* (Lake Chubsucker) – Special concern fish
- *Alasmidonta marginata* (Elktoe Mussel) – Special concern mussel
- *Alasmidonta viridis* (Slippershell Mussel) – Threatened mussel
- *Aster furcatus* (Forked Aster) – Threatened plant
- *Agrimonia parviflora* (Swamp Agrimony) – Special concern plant
- *Cypripedium candidum* (Small White Lady's slipper) – Threatened plant

Special Concern (Watch) species are species about which some problem of abundance or distribution is suspected but not yet proved. The main purpose of this category is to focus attention on certain species before they become endangered or threatened. Comprehensive endangered resource surveys may not have been completed for this area. As a result, our data files may be incomplete. We will continue to work with you throughout the study to determine impacts and avoidance of sensitive species.

Sincerely,

Maureen Millmann
WDNR Environmental Coordinator

CC: Lisie Kitchel, WDNR Bureau of Endangered Resources
Karla Leithoff, WisDOT Wetland Ecologist

APPENDIX F

SEWRPC Wildlife Habitat Criteria

Appendix B

WILDLIFE HABITAT EVALUATION CRITERIA

Wildlife habitat areas remaining in the Southeastern Wisconsin Region were identified by the Southeastern Wisconsin Regional Planning Commission and the Wisconsin Department of Natural Resources in 1988 and were categorized as either Class I (high-value), Class II (medium-value), or Class III (good-value) habitat areas. The following five major considerations were used to help classify the value of these wildlife habitats:

1. Diversity: An area must maintain a high but balanced diversity of species for a temperate climate, balanced in the sense that the proper predator-prey relationships occur; in addition, a reproductive interdependence must exist.
2. Territorial Requirements: The territorial requirements of the major species within a particular habitat must be met so as to provide for a minimum population level.
3. Vegetation: The vegetal composition and structure must be such that the required levels for provision of nesting sites, travel routes, concealment, and weather-impact modifications are met.
4. Location: Close proximity to other wildlife habitat areas is highly desirable.
5. Disturbance: Minimal levels of disturbance from human activities, other than those activities of a wildlife-management nature, are necessary.

Additional criteria used in evaluating and ranking specific types of wildlife habitat areas are as follows:

1. Upland and lowland forests: The criteria for these areas involve consideration of distances to other forest blocks; association with other wildlife habitat; forest edge; openings; canopy closure; diversity of forest types; number and distribution of mast trees; and past disturbances, including logging, grazing, and development.
2. Emergent marshes, fresh (wet) meadows, sedge meadows, fens, bogs, shrub-carrs, and alder thickets: The criteria for these areas involve consideration of position relative to other wetlands; interspersions of wetland types; distance to forageable cropland (winter food); association with upland habitat; and disturbances, including grazing, agricultural activities, and ditching, draining, or filling.
3. Grasslands and upland brush areas: The criteria for these areas involve consideration of distances to other habitat types; and disturbances, including grazing, past agricultural activity, and development.

Class I wildlife habitat areas are the highest-value habitats in the Region in that they contain a good diversity of wildlife, are adequate in size to meet all habitat requirements for the species concerned, and are generally located in proximity to other wildlife habitat areas. Class II wildlife habitat areas generally lack optimal conditions with respect to one of the three aforementioned criteria for a Class I area. However, Class II areas do retain a good plant and animal diversity. Class III wildlife habitat areas are remnant in nature in that they generally lack optimal conditions with respect to at least two of the three aforementioned criteria for Class I wildlife habitat areas. Class III areas, nevertheless, are important if they are located in close proximity to other wildlife habitat areas, if they provide travel corridors linking other habitat areas, if they provide important foraging habitat, or if they provide the only available range in an area. It is in this respect that Class III wildlife habitat areas may also serve as regionally significant habitat in Southeastern Wisconsin.

Appendix B. Species List Construction

Preliminary species lists for each habitat type are presented below. Both DNR and SEWRPC will use the lists for targeting management efforts, projecting population declines resulting from habitat loss, assisting in permitting, and general wildlife inventories. Consideration was given to the more common species of the region, both game and nongame, and threatened and endangered species. An endangered or threatened species should be included on the list only in those locations where it is known to occur as documented by DNR Bureau of Endangered Resources or SEWRPC records. A wildlife species included in 1 habitat type will often use other habitat types as well. On the other hand, a species may not be present in a particular piece of habitat where it would be expected due to habitat size, quality, or juxtaposition. The lists were designed with a variety of uses in mind.

Preliminary Species Lists

Lowland hardwoods (T1-T3K, H):

Mammals: Opossum, raccoon, mink, white-tailed deer

Birds: Wood duck, red-shouldered hawk (T), woodcock, barred owl, pileated woodpecker, veery

Herps: Western chorus frog, Northern spring peeper, Eastern gray treefrog, wood frog (northern counties), Eastern garter snake

Lowland shrub (S1-S9, K, H)

Mammals: cottontail rabbit, red fox, white-tailed deer

Birds: red-tailed hawk, northern harrier, ring-necked pheasant, woodcock, great-horned owl, eastern kingbird, catbird, common yellowthroat, swamp sparrow

Herps: Northern spring peeper, Massasauga (E)-- southern counties only

Emergent marsh (E1-E6, K,H)

Mammals: beaver, muskrat, raccoon, mink, white-tailed deer

Birds: pie-billed grebe, great blue heron, lesser yellowlegs, spotted sandpipers, American bittern, Canada goose, northern harrier, sandhill crane, ring-necked pheasant, mallard, blue-winged teal, red-winged blackbird, yellow-headed blackbird, long-billed marsh wren

Herps: green frog, cricket frog (E), Blanding's turtle (T), queen snake (E)

Upland conifer (C)

Mammals: red squirrel, pine vole

Birds: great-horned owl, long-eared owl, pileated woodpecker, black-capped chickadee, red-breasted nuthatch, pine grosbeak

Upland deciduous (D,M,O,X)

Mammals: opossum, short-tailed shrew, eastern chipmunk, gray squirrel, fox squirrel, flying squirrel, gray fox, raccoon, white-tailed deer

Birds: Cooper's hawk, red-tailed hawk, American kestrel, ruffed grouse, woodcock, great-horned owl, hairy woodpecker, wild turkey, cardinal, scarlet tanager, black-capped chickadee, warblers, ovenbird (>80 acres)

Herps: Eastern tiger salamander, blue-spotted salamander, American toad, Eastern gray tree frog, Western fox snake, Northern red-bellied snake

Upland brush (B)

Mammals: cottontail rabbit, Franklin's ground squirrel, deer mouse, red fox, coyote, long-tailed weasel, white-tailed deer

Birds: ring-necked pheasant, ruby-throated hummingbird, tree swallows, catbird, brown thrasher, bluebird

Riparian zones W0-4,L,R)

Mammals: beaver, muskrat, raccoon, mink

Birds: great blue heron, Canada goose, mallard, blue-winged teal, wood duck, mergansers, ~~willow~~, belted kingfisher, osprey (E), red-shouldered hawk (T)

Herps: bullfrog, green frog, Northern leopard frog, painted turtle, Eastern garter snake, Western ribbon snake (E), Northern water snake, massauga (E)--southern counties only

Grassland (G)

Mammals: cottontail rabbit, thirteen-lined ground squirrel, red fox, badger, skunk

Birds: mallard, blue-winged teal, red-tailed hawk, Northern harrier, ring-necked pheasant, upland sandpiper, bobolink, Eastern meadowlark, bluebird — need

Herps: Eastern tiger salamander, American toad, Northern leopard frog, Eastern hognose snake, Butler's garter snake (W), brown snake

APPENDIX G

Site Photographs

APPENDIX H

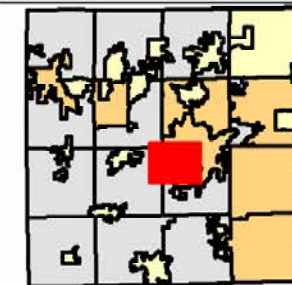
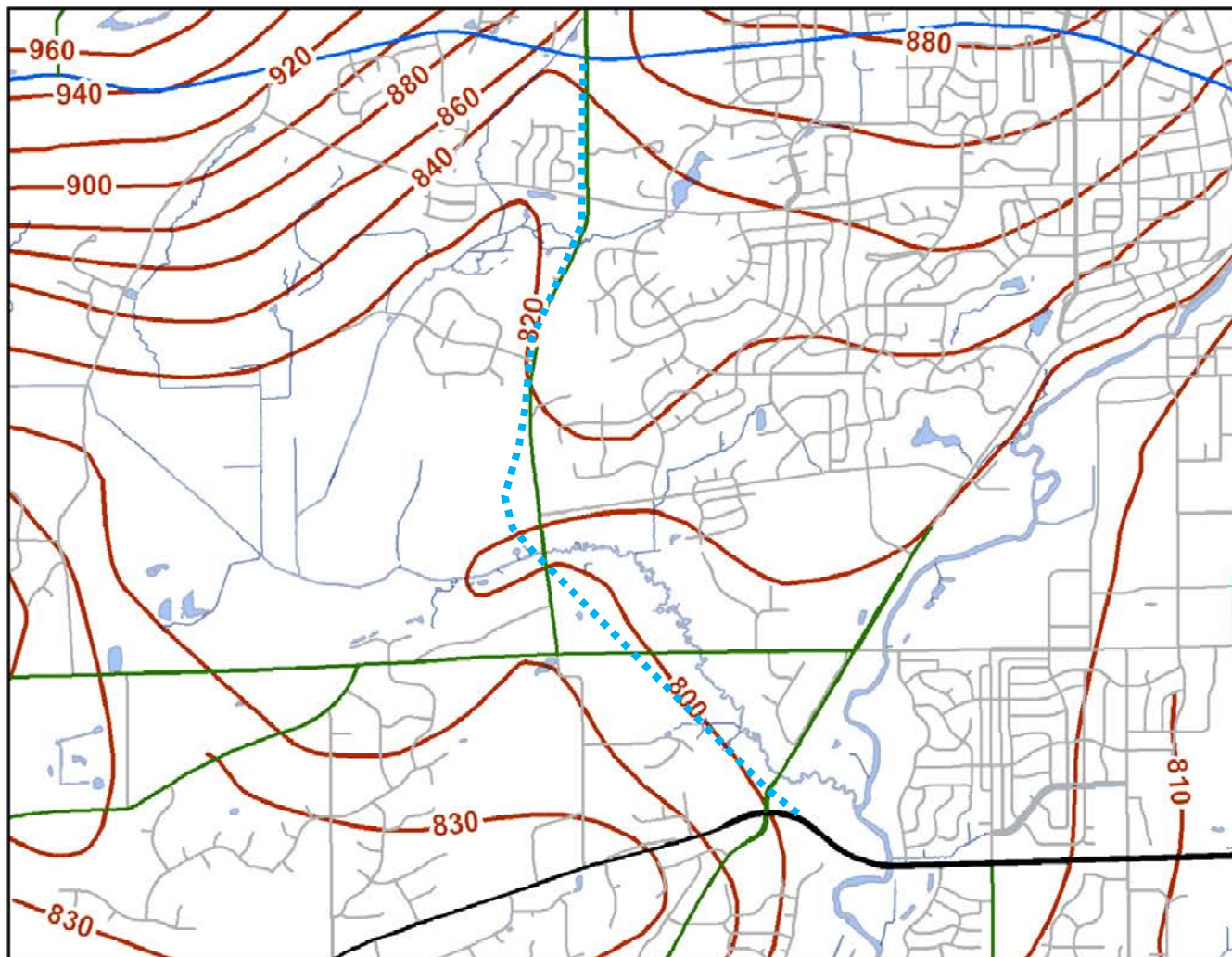
Water Table Map



**WAUKESHA
COUNTY**
Internet Mapping Site



Water Table Contours Waukesha Bypass



Legend

- Street Centerlines (Blackmap)
- Road Classification
 - County
 - Interstate
 - Interstate Ramp
 - State
 - State Ramp
 - US
 - US Ramp
 - Centerline Local
- Lakes and Rivers
- Streams and Creeks
- Water Table Elevation

Bypass Corridor



0 3250 6500 9750 ft.

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Map Generated: May 18, 2010